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An Index to the Sixty-ninth Volume of THE RAILWAY GAZETTE, *covering the issues from July 1 to December 30, 1938, is presented as a Supplement to every copy of this week's issue*

ELECTRIC RAILWAY TRACTION

A Supplement illustrating and describing developments in Electric Railway Traction is presented with every copy of this week's issue

Christmas 1938: New Year 1939

IN 1938, particularly, Britons welcomed Christmas. We, as a nation, find it easiest to achieve the tolerance towards others upon which current affairs make increasing demands, when we are allowed to enjoy the inner conviction that our own way of doing things is best. Most other peoples being similarly minded, Christmas comes as an international relief because it is common knowledge in every country that the proper way to keep Christmas is its own. A basis of self-satisfaction paves the way to those cordial feelings towards others that characterise the Christmas season. Are we to say that nothing remains of them but the Christmas cards? Even if that were so, it would in our case be a substantial reminder, as is shown by the extensive list we publish on page 31 of seasonable greetings of all kinds which we have received. As this is THE RAILWAY GAZETTE and not a Christmas card, we cannot reciprocate with the dainty verse or winsome sentiment appropriate to the season, but let our readers and advertisers be assured that we are none the less sincere for that (we did our best on our December 23 cover). Neither can we, like our popular contemporaries, command the services of prophet or astrologer to lift the veil from 1939. The hope that the railway star will be in the ascendant is the only contribution we can make to the study of the skies.

Christmas Traffic Returns

Passenger receipts for the week ended on Christmas Day, 1938, in the case of the L.M.S., Great Western, and Southern Railways, and on Christmas Eve for the L.N.E.R., were aided by weather conditions which checked road travel, and they were up £136,000. Goods earnings were, however, £150,500 down, and coal earnings £4,500 lower. For the 51 weeks total receipts were £155,191,000, a decrease of £6,782,000 or 4·19 per cent.

	51st Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	+ 53,000	− 77,000	+ 7,000	− 17,000	− 3,067,000	− 4·69
L.N.E.R. ..	+ 11,000	− 54,000	+ 5,000	− 38,000	− 2,372,000	− 4·97
G.W.R. ..	+ 34,000	− 16,000	− 12,000	+ 6,000	− 1,177,000	− 4·30
S.R.	+ 38,000	− 3,500	− 4,500	+ 30,000	− 166,000	− 0·77

More favourable comparisons are made with 1936, as shown in the following table:—

	51st Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	+ 109,000	+ 9,000	+ 71,000	+ 189,000	− 72,000	− 0·12
L.N.E.R. ..	+ 44,000	− 9,000	+ 55,000	+ 90,000	− 38,000	− 0·08
G.W.R. ..	+ 68,000	+ 13,000	+ 15,000	+ 96,000	+ 304,000	+ 1·17
S.R.	+ 71,000	+ 5,500	+ 3,500	+ 80,000	+ 727,000	+ 3·54

Aggregate traffics of 1938 in comparison with 1936 show increases of £2,923,000 or 4·26 per cent. from passengers and of £1,014,000 or 3·25 per cent. from coal, but a decrease of £3,016,000 or 5·54 per cent. from merchandise. Taken together the increase is £921,000 or 0·60 per cent.

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The Week's Traffics

The latest traffic returns show that the receipts of the four group companies for the year 1938 amount approximately to £157,534,000, a decrease of £7,056,000 or 4·29 per cent. in comparison with 1937. Passenger train receipts for the complete Christmas holiday period in 1938 show increases in comparison with 1937 of £46,000 on the L.M.S.R., £26,000 on the L.N.E.R., £24,000 on the Great Western, and £51,000 on the Southern, but merchandise receipts for the four companies are down £374,000 and coal earnings are £56,000 lower.

	52nd Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	− 7,000	− 118,000	− 11,000	− 136,000	− 3,203,000	− 4·82
L.N.E.R. ..	− 15,000	− 68,000	− 25,000	− 78,000	− 2,450,000	− 5·04
G.W.R. ..	− 10,000	− 45,000	− 12,000	− 67,000	− 1,244,000	− 4·48
S.R.	− 13,000	− 2,500	− 3,500	+ 7,000	− 159,000	− 0·73

In the table shown below comparisons are made with 1936:—

	52nd Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	− 12,000	− 161,000	− 23,000	− 172,000	− 244,000	− 0·38
L.N.E.R. ..	+ 22,000	− 69,000	− 15,000	− 62,000	− 100,000	− 0·22
G.W.R. ..	− 6,000	− 68,000	− 31,000	− 105,000	+ 199,000	+ 0·76
S.R.	+ 9,000	− 8,500	− 4,500	+ 4,000	+ 723,000	+ 3·46

Receipts for the whole of 1938 are higher by £578,000 or 0·37 per cent. than those for 1936. Passenger earnings are up £2,960,000, and coal earnings are up £940,500, but merchandise receipts are £3,322,500 down.

* * * *

A Living Link with 1839

In the first few days of the New Year it is customary to spend some thought on the subject of centenaries, and for three or four years past we have published a specially contributed article on railway personalities of a hundred years previously. This year as usual we include on page 17 such a contribution from Mr. George J. S. King, but one name mentioned therein is worthy of more than a brief record, for Mr. H. G. Drury, M.V.O., who was born on September 16, 1839, is happily with us still and probably provides in his own person the only living railway link of a century's span. A working life

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devoted to the railway service culminated in his appointment in 1897 as Superintendent of the Line of the old Great Eastern Railway. Mr. Drury's principle was that the timetable represented a contract with the public and should be meticulously observed. It therefore became a well-known characteristic of the Great Eastern during his regime that one could almost set one's watch by the trains, so punctual were they. Mr. Drury was strict in ensuring observance of his rules, but his humanity and justice made him as popular with the staff as he was respected by them. He retired in 1904 and was elected a member of the Retired Railway Officers' Society as long ago as 1905; he was Chairman of that society during the years 1911-1913. We offer our hearty congratulations to Mr. Drury.

* * * *

L.M.S.R. and the New Year Honours

Outstanding among the New Year Honours which we record in our Personal columns on page 29, are those which may be considered as official recognition of the importance of the occasion last September when the L.M.S.R. celebrated the centenary of opening throughout of the London & Birmingham Railway. Mr. Ashton Davies receives a C.V.O., and in addition six honours are conferred with the specific remark: "On the occasion of the centenary of the railway." These include Mr. O. Glynne Roberts, C.B.E. (Civil Division); Mr. John Purves, M.V.O. (Fourth Class); Mr. G. L. Darbyshire, O.B.E. (Civil Division); and Mr. J. B. Scattergood, M.B.E. (Civil Division). In connection also with the centenary, the Medal of the Order of the British Empire (Civil Division) has been awarded for meritorious service to Mr. H. J. Dean, Dining Car Attendant, and Mr. E. H. Horney, Inspector, Euston station. It will thus be seen that official recognition of the importance of this centenary has been marked in a similar way to that in which the G.W.R. centenary of incorporation in 1935 was noticed in the Honours List.

* * * *

Tanganyika and the German Colonial Demands

The 1939 budget recently presented to the Governor of Tanganyika by Mr. R. E. Robins, General Manager of the Tanganyika Government Railways, was of special interest in its reference to the political uncertainty due to the German colonial demands. Tanganyika, having been German East Africa before the war, naturally follows the colonies controversy with particular concern, and Mr. Robins attributed part of the £40,000 deficit on the working of his railway during the past year to uncertainty as to the future of the territory. Nevertheless, this being an incalculable liability, he could not make allowance for it in the new budget. Apart from the political uncertainty of the past year adverse weather conditions and the current world depression have been important factors in influencing railway traffics. The Ports Committee having recommended that all ports in the territory should be administered similarly to the railways, namely, on business lines, by the Railways and Ports Services in future, Mr. Robins estimates for both separately. Marine services on Lake Tanganyika are treated as ancillary railway services. The advantages of unified administration, together with the prospects of better weather than that of the past year, should produce a better financial result, but in the long run the increased use of the transport facilities is that which will bring about their prosperity.

* * * *

Eight Months' Passenger Traffics

The Ministry of Transport statistics for last August also summarise the passenger train traffics for the first eight months of 1938, showing a fall in the numbers of main line passengers under all headings. Total main line passengers, apart from season ticket holders, were 572,821,784, a decrease of 47,081,097 or 7·59 per cent. in comparison with the first eight months of 1937. Ordinary passenger receipts for the eight months were £36,753,688, a fall of only £266,486 or 0·72 per cent., and there were increases from monthly return and workmen's tickets and under "other descriptions." The comparison is, of course, with a period before the 5 per cent. increase in fares came into operation. Standard fare passengers, who were 9·50 per cent. of the total, decreased by 14·25 per cent., and standard-fare receipts, which represented 13·14 per cent. of the total ordinary passenger receipts, were down by 4·79 per cent. First class ordinary passengers during the eight months, who were 1·64 per cent. of the total, fell off by 705,666 or 6·97 per cent., and first class ordinary receipts were £2,751,608, or 7·48 per cent. of the total ordinary passenger receipts, showing a drop of £31,479 or 1·13 per cent. First class seasons brought in £1,070,585, or £1,421 less, and the total first class receipts of £3,822,193, which were 8·95 per cent. of the total earnings from passengers, fell off by £32,900 or 0·85 per cent. Season ticket earnings as a whole improved by £130,066 or 2·24 per cent.

* * * *

The Devil's Dyke Railway

The last day of the Old Year was an appropriately melancholy occasion for the closing of the Devil's Dyke branch of the Southern Railway. This line, 3½ miles in length, was a miniature though standard-gauge mountain railway, rising from the coast into the heart of the South Downs. It was constructed by the Brighton & Dyke Railway Company, incorporated by Act of August 2, 1877, and was opened on September 1, 1887. It ran from Dyke junction, near Hove, to the Devil's Dyke, a favoured beauty spot, and in its short and tortuous length rose through a vertical height of over 400 ft.; the ruling gradient was 1 in 40/41 and reverse curves of from 13 to 30 ch. radius were almost continuous. The line was worked from its opening by the London, Brighton & South Coast Railway and was incorporated into the Southern Railway at grouping. It was not successful in earning an adequate return on its capital of £72,000 and a Receiver was appointed in 1895. During the war it was closed as an economy measure. In September, 1921, by arrangement with the L.B. & S.C.R., the branch was fitted for testing and demonstration purposes with the Angus train control system. An interesting vehicle—a lightweight Sentinel-Cammell railbus—was introduced in 1932 and worked the passenger service for some time.

* * * *

Two Years of the Treforest Trading Estate

"Two Years of the Treforest Trading Estate" or "Industry Goes West" would make very good titles for an account of the progress of this South Wales enterprise which celebrated its second anniversary on New Year's Eve. When construction work began, the site consisted of a few meadows with unkempt hedgerows, a cottage, and three or four stunted trees. It was bounded by the River Taff and a "B" class road, and the only signs of activity were a power station at one end and an old lady operating a ferry boat at one penny per person per crossing at the other. Today there are 38 factories, 32 of them in production, employing over 1,000 people, more than half of whom are adult males. Construction work on a further twenty factories is also providing work for 600 men. The River Taff has been specially bridged to

give rail connection to the estate. Everywhere there are broad grass verges and plots which in the summer will be bright with flowers. Telegrams of congratulation on this notable progress have been received by the estate administration from the Minister of Labour (Mr. Ernest Brown) and the present Special Areas Commissioner (Sir George Gillett).

* * * *

A Jammed Steam Brake Valve

Major G. R. S. Wilson's report on the slight collision between an engine and its train at York, L.N.E.R., on July 12, 1938, will be found summarised on page 33. The mishap resulted from a brake failure at the last moment, due to an unusual cause, the jamming of a steam brake valve trigger lock device, which prevented the valve responding to the use of the vacuum ejector, although it had done so on the way from the shed. Apparently one of the enginemen must have pushed the steam brake handle into engagement without realising it, but it ought not to have been able to hold fast. A previous case in the Southern Area of the L.N.E.R. in 1932 had led to the issue of an instruction that drivers were to use the steam brake handle when running light and, on taking over, to see that the trigger mechanism (necessary to enable the steam valve to be held shut with no vacuum available) was free when 10 inches of vacuum had been created. Major Wilson recommends the issuing of suitable instructions to all areas of the line.

* * * *

Rail Welding in South Africa

Although electric arc welding of rail joints has been practiced for some time on the South African Railways, and many miles of track have been treated, experience with a flash butt welding depot recently established at Darnskraal has proved so satisfactory that four additional flash butt welding depots, each with a capacity of about 100 track miles per annum, are now being established at various points in the Union. In the year ended March 31, 1938, five miles of track between Elandslargte and Meduna were rerailed with 96 lb. rails welded at Darnskraal into 120-ft. lengths. Plant and material were purchased during the year so that 120-ft. lengths could be Thermit welded into longer lengths on the site, and a one mile length of track with continuously welded rails was under construction for experimental purposes. At Witpoortjie 1½ miles of experimental Thermit welded track, installed a couple of years ago, has so far been satisfactory and only one rail joint has developed a partial failure. Battered rail ends are being reconditioned by welding to a considerable extent, and the reconditioning of crossings, permanent way tools, &c., by welding is being carried out more extensively.

* * * *

Turbo-Electric Locomotives

With the completion in America of the ambitious turbo-electric locomotive described elsewhere in this issue the many claims to the superiority of this type of unit over other types have again been put forward, and some of them will be found in the description we publish. The flexibility of the electric drive enables the turbine to be run steadily at the economical speed irrespective of train speed and this, in conjunction with the use of high pressure, high temperature steam and of a condenser, will certainly ensure a good thermal efficiency. But we notice that once again the elimination of reciprocating parts and the consequent abolition of hammer blow is hailed as an advantage in a locomotive employing axle-hung electric motors. We believe that most track maintenance engineers would prefer reciprocating parts to 25-ton axle loads on 3 ft. 8 in. wheels. Railway experience with condensers is somewhat limited and while we have no reason to expect that any troubles will be experienced with the turbine, the electrical gear, or the forced circulation boiler, we should not be surprised at any condensing plant showing itself to be somewhat temperamental between atmospheric temperature limits of – 40° F. and 115° F. If in reality steam from turbines developing 5,000 h.p. can be handled without substantial loss under the widely varying conditions obtaining on a railway, in a condenser small enough for incorporation in a locomotive, an extraordinarily difficult problem will have been solved, and many fresh possibilities will have been opened up.

* * * *

Locomotives and Track

One of the advantages that used to be claimed for electric traction was the elimination of reciprocating drive with its accompaniment of hammer-blow at speed, any effect of which on the permanent way, however, was not readily identifiable. The investigations of the Bridge Stress Committee showed that there were many locomotives running which, at high speed, gave rise to much greater track stresses than engines with considerably heavier deadweight axle loads; and, as a consequence, of recent years permanent way engineers have begun to take hammer-blow into account in specifying the limits to which locomotive engineers might work in their designs for more powerful engines. Later experience has brought further useful information to light, showing that the proportion of reciprocating parts which it is necessary to balance in a modern, rigidly constructed, long wheelbase locomotive is very much less than with the old-fashioned short wheelbase type; and, indeed, many engines are now running quite successfully with little or none of the reciprocating parts balanced, and consequently without hammer-blow. The old claim therefore no longer seems to be valid that the elimination of reciprocating parts, obtainable only by the use of electric drive, produced an advantage.

* * * *

Sleeping Cares

It is strange how a traditional and highly-recommended panacea for some ill or other often turns out a delusion and a snare. Amazed at our repeated failures to woo the sleep-god by the universally boomed " sheep-and-gate " method, we decided during a period when we were not on winking terms with Somnus to try out a patent of our own. Wakeful golfers have been known to lull themselves to rest with " record " rounds played, stroke by stroke, in the subconscious. and on this principle we concentrated our thoughts on a renowned express train and made it achieve running-times well below bogey for the course. Among our successes we cite 6½ hours of dreamless slumber after bringing the up Bristolian through Reading in 60 minutes from the start with a well-sustained 100 through Didcot, but this was almost equalled by the delicious oblivion after a superb run with the 5.25 p.m. from Liverpool, which, with an unparalleled minimum of 90 at Tring, was well set for 2 hours dead from Crewe to Euston when Morpheus " gave us the road." On another occasion we had worked a streamlined " bird " up to 126½ m.p.h. at Essendine on the up Coronation, but fearful of a catastrophe we switched over to safer ground with an " even time " Salisbury—Andover on the Atlantic Coast. We heartily commend our plan to " insomniacs," and as a sop to the sheep-counting brigade we offer the alternative consisting of repetitions of " Haverfordwest " (*pace* Miss Naomi Royde-Smith), representing the passage of a slow train over 60-ft. rails. It is equally efficacious.

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Centenaries of 1939

BY the beginning of 1839 a severe reaction had set in as regards the promotion of new railways. A year ago when we were commenting on centenaries of 1938 (in THE RAILWAY GAZETTE of January 7, 1938, page 5) we observed that the progress of railway construction in this country even in 1838 was not matched by corresponding activity in new schemes, and that of some 60 Bills advertised for the session of 1837-8 only 26 made any appearance in the House of Commons, and but 18 received the Royal Assent. Lines authorised in the second railway boom—which took place during the years 1836-1837—were already completed or well in course of construction, and the increasing facilities thus provided raised the question in many minds as to whether already sufficient mileage had not been authorised to provide the country with the major benefits of rapid communication. It was felt in some quarters that further mileage would imperil existing vested interests and alter the life and habits of large sections of the community without any commensurate general benefit. Some interesting information regarding the railway situation in 1839 is given on a large wall calendar (for 1840) published at *The Railway Times* office, price 1s. 6d. Various tabular indications of the size of the industry are included, one of which lists the numbers of railway Acts of Parliament as follow:—

1801 ..	1	1814 ..	1	1827 ..	1
1802 ..	3	1815 ..	0	1828 ..	5
1803 ..	1	1816 ..	1	1829 ..	5
1804 ..	2	1817 ..	1	1830 ..	6
1805 ..	1	1818 ..	1	1831 ..	4
1806 ..	0	1819 ..	2	1832 ..	5
1807 ..	0	1820 ..	1	1833 ..	4
1808 ..	2	1821 ..	2	1834 ..	5
1809 ..	2	1822 ..	0	1835 ..	8
1810 ..	1	1823 ..	0	1836 ..	29
1811 ..	3	1824 ..	2	1837 ..	15
1812 ..	4	1825 ..	8	1838 ..	2
1813 ..	0	1826 ..	11	1839 ..	1

It is explained that this total of 140 is "exclusive of amended Acts for raising more capital, constructing branch lines, &c. The total number of these amended Acts from 1801 to 1839, inclusive, was 135, making, altogether, in that period, 275 Acts. Very many of these are for coal lines." Other lists, such as that in J. C. Jeaffreson's "Life of Robert Stephenson," divide the total of 275 Acts into 135 for new lines and 140 for amended provisions or enlarged powers. Another *Railway Times* table, entitled Capital in Railways, shows "The sums authorised to be raised by Shares and Loans under the sanction of Acts, whereby Railway Companies have been incorporated between January 1, 1826, and January 1, 1839." In view of the period covered, there are one or two cases of companies formed previous to 1826, and included in the list only in respect of additional capital authorised subsequently. The amounts involved, however, were comparatively trivial, and the total of £57,788,444 may be taken as representative of approximately the correct position; it was made up of £41,610,814 capital in joint stock and £16,177,630 authorised to be raised by loan.

A synopsis of railway proceedings in Parliament during the session of 1839 given in *The Railway Times* calendar covers 35 petitions presented of which 25 received the Royal Assent. One of these Acts was for the dissolution of the company, and as the undertaking in question—the Croydon, Merstham, & Godstone Iron Railway Company—was one of the earliest public railways in the world, the Parliamentary record of its final Act is worthy of notice. The petition was presented on February 21; the first reading March 18; the second reading May 13; the third reading June 13; and the Royal Assent July 1, 1839. The only new company to obtain an Act of incorporation in 1839 was the West Durham Railway (July 4) a 5½-mile mineral line extending from the Byers Green branch of the Clarence Railway across the Wear Valley to Crook. The total new mileage sanctioned in 1839 was only 54½ miles, but it included two important diversions, namely, that of the South Eastern Railway to join the London & Brighton Railway at Redhill instead of building its own approach to London from Edenbridge across the North Downs; and that of the Northern & Eastern Railway to join the Eastern Counties Railway at Stratford, instead of constructing a separate line from Tottenham to a terminus at Islington.

New railway mileage brought into use in Great Britain during 1839 totalled approximately 220 miles, but this was made up mainly of fragments. The one chief exception was the main line of the Birmingham & Derby Junction Railway (Hampton Junction to Derby) which was brought into service on August 12 and completed 139 miles of through communication from Euston to Derby. Two months earlier (on June 4) the Midland Counties Railway had opened its first section, namely, the 16 miles between Derby and Nottingham. Two main-line railways which continued to make progress in opening their trunk routes were the L.S.W.R., and the G.W.R. The former was extended on June 10 from Winchfield to Basingstoke, and on the same day the 12-mile section from Southampton (Northam temporary station) to Winchester was also brought into use, leaving only a 19-mile stretch between Basingstoke and Winchester which was covered temporarily by road coaches. Incidentally, June 4, 1839, saw the change of name from the London & Southampton Railway to the London & South Western Railway, in order to placate the people of Portsmouth, who were to be served by a branch to Gosport that was authorised in 1839. G.W.R. progress was confined to the opening of an 8¼-mile extension on July 1 from Maidenhead (old station) to Twyford, which included Brunel's famous flat-arch brick bridge across the Thames. Two London lines opened a hundred years ago were the London & Croydon Railway (from a junction with the London & Greenwich Railway at Corbett's Lane to West Croydon) on June 5; and the 5-ft. gauge Eastern Counties Railway (from a temporary terminus at Devonshire Street, Mile End, to Romford) on June 20. In the North, the Manchester & Leeds Railway opened its first section, the 14 miles from Oldham Road, Manchester, to Littleborough, on July 4; the York & North Midland Railway linked York with the Leeds & Selby Railway at South Milford on May 29; the Newcastle & North Shields Railway was brought into service between Newcastle (Manors) and North Shields on June 18; and the Newcastle & Carlisle Railway extended its line into Newcastle on May 21 by a 3¾-mile section from Blaydon which crossed the Tyne at Scotswood and reached Forth Bank. Sundry short sections of railway in County Durham; the Aylesbury Railway (on June 10); the 5-ft. 6-in. gauge Arbroath & Forfar Railway (on January 3); and various lines in Yorkshire, Scotland, and South Wales, all contributed their mites to a comparatively large total of small constituents.

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The Railway Position in Portugal

A FINANCIAL position steadily deteriorating since 1930 is described in a Report on Economic and Commercial Conditions in Portugal, issued by the Department of Overseas Trade, in dealing with the Portugese railways. It was in 1930 that road competition first began to make itself seriously felt, and especially since 1937, when the cost of coal began to rise, the situation has become acute. Gross revenues, which amounted to

£2,908,000 in 1929, had fallen to £2,441,000 in 1936, net earnings falling from £389,000 to £338,000. The hardest hit was the Companhia dos Caminhos de Ferro Portugueses, whose gross revenues fell from £2,378,000 in 1929, to £2,191,000 in 1937, and net earnings for the same periods from £326,000 to £171,000. All the companies have been forced to reduce capital outlay and maintenance expenses, and the efficiency level has consequently declined. At the same time there has been a considerable increase in the cost of coal and materials. The average price paid by the companies for coal in 1929 was 22s. 4d. a ton, c.i.f., but in 1938 the price had risen to 27s. 3d. In 1935 steps were taken to put a stop to the uncontrolled competition of road motor transport and the reduction in passenger traffic was checked. But the loss of goods traffic is more serious, and in July, 1938, the Government stopped the issue of licences for the motor transport of goods by road, in cases which might be detrimental to a solution of the problem of co-ordination. In March, 1938, the companies were empowered by the Government to increase their general tariff rates by 10 per cent. (except on wheat and flour) this increase to remain in force until September, by which date a unified and simplified tariff scheme was to be submitted. Passenger and goods rates in Portugal, states the report, are well below the level of other European countries, and have not been maintained at their former level in relation to the depreciation of the Escudo. At the end of 1936, the companies operated 2,768 km. of broad gauge and 723 km. of narrow gauge railway. The increase in tariffs referred to in the report was described in THE RAILWAY GAZETTE of July 1 last, and the general situation of the railways in Portugal was reviewed in our issue of April 22, 1938.

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Railway Claim for Freedom

SINCE the Minister of Transport on December 12 remitted to the Transport Advisory Council for consideration and recommendation the request of the railway companies for the repeal of the existing statutory regulation of charges for the conveyance of merchandise traffic by railway and the requirements incidental thereto, several interesting developments have taken place. The members of the council lost no time in meeting and, on December 15, after a very long and full discussion, announced that they had appointed a special committee to consider the companies' claim and prepare a report for consideration by the council as quickly as possible. It was also intimated that this committee proposed to invite memoranda from such interests as they considered could provide useful assistance, and to supplement such memoranda by oral evidence when they considered it desirable. In response to inquiries, however, it was stated that the committee did not propose to open its meetings to the public unless circumstances rendered such a course desirable when oral evidence was being given. Reference has previously been made in these columns to the large number of organisations represented on the council, and it is understood that the committee which has been appointed comprises about twenty members, with Sir Arthur Griffith-Boscawen as Chairman; and that it represents all the interests on the council with the exception of local authorities, users of horses and horse-drawn vehicles, pedestrians, and pedal cyclists. The railway representatives on the committee are Lord Stamp, Sir Ralph Wedgwood, and Sir James Milne.

It quickly became apparent, however, that owing to the wide range of organisations concerned, reasonably quick progress could be achieved only if, as a preliminary, the railway companies' representatives arranged to discuss their claim informally and separately with the various bodies concerned. Accordingly, a meeting took place with the iron and steel interests on December 16 for the purpose of discussing the basic proposals of the companies' claim and ascertaining the extent to which these industries were willing to support it. This was followed on December 29 by a discussion with a liaison committee of the principal road haulage interests at which appreciable progress was made towards a mutual understanding. Further interviews occurred on December 30 with representatives of the leading dock and harbour authorities, while during the present week meetings have been held with the canal interests, representatives of the iron and steel trades, agriculture, and coastwise shipping, and a second discussion is being held with road haulage interests today (January 6).

These informal meetings are affording an opportunity for the railway companies to explain to influential representatives of the country's trade and industry the implications of their claim for equality of treatment with road hauliers in the matter of the control of charges and obligations relevant thereto. They are facilitating a frank exchange of views upon the various considerations which are likely to arise should the companies secure their desired freedom, and are enabling the organisations concerned to frame their views, which they have been asked to submit to the committee in the form of memoranda as quickly as possible. At the moment it is proposed that the next meetings of the committee take place on January 11, 12 and 13, but whether the organisations concerned will be able to complete their memoranda for presentation to the committee by those dates depends upon the extent of the progress made in these informal talks. In any case the railway representatives are losing no opportunity of pressing the discussions forward with the utmost expedition as they realise that an early decision is essential.

* * * *

Victorian Government Railways

FINANCIAL results from the operations of the Victorian Government Railways, Tramways, and Road Motor Public Services during the year ended June 30, 1938, showed an improvement of £184,123 over those for the previous year, as the deficit was reduced from £426,076 to £241,953. There was a decrease of £411,845 in the gross revenue from all services and an increase of £573,212 in working expenses. On the other hand there was a reduction of £1,288,616 in interest charges and exchange, brought about by the transfer as from July 1, 1937, of £30,000,000 of railway loan liability to the State's General Account, in accordance with the provisions of the Railways (Finances Adjustment) Act, 1936. This saving in interest, &c., was largely offset by the discontinuance of the Treasury recoups (£668,926 in the year 1936-37) in respect of losses incurred on certain non-paying lines and reductions in freight charges, and by the statutory obligation to include in the railway accounts the Department's annual contribution (£119,435 in 1937-38) to the National Debt Sinking Fund. Prior to July 1, 1937, this contribution had been met by the Treasury. The net benefit to the railway finances as a result of the reduction in the loan liability was, therefore, approximately £500,000.

Railway revenue was adversely affected by the discontinuance of the above-mentioned recoups. These represented in 1936-37 £211,461 for loss on working certain railways, £429,775 for reductions in freight charges on agricultural produce, wool, and livestock, and £19,113 guarantees in respect of losses on certain lines. For the year under review £10,000 was received by way of guarantee. Passenger traffic was seriously diminished by the

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epidemic of infantile paralysis, as a result of which all non-essential traffic was greatly restricted for about nine months. Country passenger traffic brought in £1,403,144, a decrease of £82,202, or 5·53 per cent., and suburban traffic £2,281,235, a decrease of £40,277 or 1·73 per cent. A noticeable feature in country passenger traffic was a relative increase in travel upon first class return tickets in response to a reduction in fares. Including season-ticket holders calculated on an annual basis, the number of first class journeys in 1937-38 was 44,531,407, or 32·29 per cent. of the total, with receipts of £1,262,452, or 34·26 per cent. of the total revenue from passengers. In goods and livestock traffic there was an increase of 445,407 tons, and from railway users £345,775 more was received in revenue, but with the cessation of the recoups for reductions in freight charges which in the previous year amounted to £429,775, there was a net decrease of £84,000 in goods traffic earnings. Some railway figures are given in the accompanying tables:—

	1936–37	1937–38
Average miles	4,721	4,721
Train-miles	17,211,384	17,916,763
Net earnings per train-mile ..	3s. 4·11d.	2s. 1·52d.
Passenger journeys	141,343,253	137,894,676
Goods and livestock, tons ..	6,812,962	7,258,369
Operating ratio, per cent. ..	71·62	80·43
	£	£
Passenger revenue	3,806,858	3,684,379
Goods and livestock revenue ..	5,028,806	4,944,806
Total earnings	10,135,291	9,735,075
Working expenses	7,258,830	7,830,252
Net earnings	2,876,461	1,904,823
Capital expenditure	77,203,218	51,164,416

The increase of £571,422 in railway working expenses is more than accounted for by the increased cost of salaries and wages as a result of awards of various tribunals, and the higher prices of coal and other materials. Passenger services both country and suburban have been continuously improved both in speed and frequency. The new air-conditioned Cor-Ten steel train Spirit of Progress was placed in the interstate express running between Melbourne and Albury on November 23, 1937, and won instant popularity. The total number of air-conditioned cars now in service is 22, and four buffet cars with this equipment are under construction. At the close of the financial year 77 per cent. of the total goods stock had been completely equipped with automatic couplings. On the Sunshine—Bendigo line, 21½ miles of 80 lb. rails were replaced by new 90 lb. rails welded into lengths of 225 ft., and similar operations on the Newport—Geelong line were completed. Approximately 5,500 welds in 80-lb., 100-lb., and 110-lb. rails were made *in situ* by the Thermit process. The mileage welded during the year was 72 miles, making the total mileage of welded track 243.

RAILWAY BENEVOLENT INSTITUTION

A New Year's Day collection in aid of the Railway Benevolent Institution was made on Monday last, January 2, at all railway stations in Great Britain and Ireland. The number of railway employees who became members of last year's Casualty Fund was 164,556, and assistance has been rendered to no fewer than 90 widows of men killed, 596 widows of men dying from illness, and 4,849 men accidentally injured, making a total of 5,560 cases relieved, being one in every 29 contributors. The amount required to enable the board of the Railway Benevolent Institution to carry on efficiently the good work undertaken and to meet the constant flow of new applications from necessitous widows, orphans, and permanently disabled railway workers for relief from the General Fund, continues to increase.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Aylesbury Branch Mystery

60A, Green Lane, Northwood
December 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Tuck's "Railway Shareholders' Manual" of 1845 was my authority for stating that the Aylesbury Railway was leased to the London & Birmingham Railway Company for seven years from June, 1844, at a rent of £2,000 per annum. No earlier lease was mentioned but I have since seen an official notice by the Aylesbury Railway Company dated August 6, 1839, stating "that the property is under lease to the London & Birmingham Railway for a term of five years at the yearly rent of £2,500." This lease expired in 1844 when a 7-year lease on different terms was executed, but within two years the London & Birmingham purchased the railway outright.

The file of the *Aylesbury News* for 1839 shows that, as stated in my previous letter, a shuttle service between Aylesbury and the main line was in operation from the opening, but, in consequence of complaints of long waits at the junction—sometimes for an hour and a half—the Aylesbury directors induced the London & Birmingham to improve the service. This was effected on October 1, 1839, when, with other improvements, a through train between Aylesbury and Euston was put on (11 a.m. from Aylesbury and 3 p.m. from Euston), and also from that date passengers between Aylesbury and the north travelled *via* Tring. The *Aylesbury News* of June 1, 1839, states that the London & Birmingham Railway Company proposed to build a station house on the main line just at the junction with the Aylesbury branch. The station then in existence at Cheddington must have belonged to the Aylesbury Company, hence its omission by Bradshaw from the London & Birmingham timetable in the early years of the service.

Yours faithfully,
REGINALD B. FELLOWS

Locomotive Driver or Engineer?

58, Tweedsmuir Road,
Glasgow, S.W.2
December 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The letters from various sources on the above subject which you have published, make me ask you to give the experience of one who has the unique combination of seagoing service, footplate, and other engine-driving practice.

I have been marine-engineer in charge of watch with triple-expansion, compound, and paddle engines, and over thirty years ago (the happiest years of all my life) was on a Scotch railway firing on the footplate. I have seen both types of service, and think the engine driver is quite entitled to be as styled an engineer, because he is just as much one as the marine engineer-officer.

I found much swollen-headed snobbery among the marinemen, but no such among the locomotive engineer or enginemen on the railway. What is the man driving a ship and doing work at the bench anyway, even if he served in a shop like myself from apprentice? Driving a locomotive takes high skill and quick judgment, sharp perception, and great experience of the engine's whim; and be it known no two engines work exactly alike. The same applies to the marine engine. There is little difference in engine driving at sea or on land, only the marine man has the B.T. certificate, which goes for very little as it is obtained by the cramming schools, not by the experience and study gained by knowledge. The locomotive driver(?) is certainly an engineer.

Yours, &c.,
MALCOLM MCLAREN NIVEN
Locomotive and Marine Engineer of Over Forty Years' Experience

PUBLICATIONS RECEIVED

Dangerous Goods. Third edition. By Dr. Jules Aeby. Antwerp: Lloyd Anversois, 12, Rue Vleminckx. 10 in. × 6½ in. × 1½ in. 560 pp. Price 60 Belgas (£2 2s.) net.—In this work Dr. Jules Aeby amplifies and brings up to date in one comprehensive volume the information on the subject of Dangerous Goods which appeared in earlier editions and in supplements. The first edition was published in 1910 and soon went out of print. It was followed in 1922 by a second edition, largely revised, and first and second supplements to this edition appeared in 1930 and 1935, respectively, dealing with commodities not previously mentioned. In the earlier publications all particulars were given in French, English, and German, and this valuable feature is repeated in the present edition. The addition of two supplements to the second edition made it necessary to consult three publications, but this inconvenience has been remedied in the new volume, which consolidates in 549 paragraphs, rewritten and modified, the substance of the 692 paragraphs appearing in the second edition and its supplements. Packing and stowage are described with most of the goods.

Propaganda in the Next War. By Sidney Rogerson. London: Geoffrey Bles Limited, 2, Manchester Square, W.1. Pp. 188. Price 5s. net.—Propaganda is "the practice of propagating tenets or principles." It does not mean misrepresenting the enemy; on the contrary, the best propaganda, because the least easily refuted, tells selected truths about him. Propaganda in its secular sense—it was once purely theological in its implications—is an ancient practice (see large quantities of classical literature) but a modern science. The last world war was fought with armaments and clinched by propaganda. The latest fashion would seem to be to dispense with the armaments, except as a fifth ace.

Mr. Rogerson, who contributes this volume to a series called "The Next War," edited by Captain Liddell Hart, is eminently well qualified for the task. He has long been in charge of the publicity side of one of the world's great businesses, and he has known at close range the allied propaganda, belated but so effectual, of 1914-18. His survey is comprehensive and well ordered. In the first chapter he explains what propaganda is and is not. In the second, he defines the present position, with special reference to what has been accomplished by the dictatorship countries. In the third, he reviews the ways and means at the disposal of propaganda, chiefly the press, telegraphy, the cinema, radio, and personal contact. In the fourth, he explains how these media can be directed in the next war towards enemies, neutrals, and—not least vital and difficult—allies. In the fifth and last, he deals with defensive propaganda on the home front. He considers that our propaganda should be under a centralised control, "preferably non-political, and disseminated by those who are not connected in the public mind with any specific interest or party." The public mind must be prepared for that control which, in Mr. Rogerson's opinion, the Government will ultimately be forced to institute. Mr. Rogerson has tackled brilliantly a subject made all the more difficult by the kaleidoscopic nature of the international scene in our day.

British Light Railways. By R. W. Kidner. Sidcup: The Oakwood Press. 19, The Drive. 7 in. × 4½ in. 100 pp. + illustration plates. Price 6s. net.—There are now only some 83 miles independent light and narrow-gauge railway opened for passenger traffic in England, 37 miles in Wales, and 445 miles in Ireland. Up to within the last few years, however, a considerably greater mileage existed and it is this rapid closing of minor lines which has inspired Mr. R. W. Kidner to produce recently a series of light railway handbooks in brochure form price 1s. each. The first six of the series have now been bound in substantial green cloth covers to produce the present volume. Since the first booklet was published, in September, 1936, many correspondents have written to the author pointing out errors and adding details of information and this information is classified in seven pages of addenda and errata included at the end of the volume. The book contains reproductions of 91 photographs, 204 thumbnail sketches of locomotives, and 55 outline maps. Outlines are given of the history and equipment of over 60 light and narrow-gauge railways with total mileages of 220 in England, 85 in Wales, and 595 in Ireland. If these figures be compared with those quoted above it will be seen how rapidly are many of such lines being closed.

The History of the Highland Railway. By H. A. Vallance. London, Arthur H. Stockwell Limited, 29, Ludgate Hill, E.C.4. 8¾ in. × 5½ in. × 1¼ in. 224 pp. + 2 folding maps. Price 10s. net.—For some time past Mr. H. A. Vallance, the Secretary of the Railway Club, has had in preparation a history of the Highland Railway, and so widely have his researches extended that practically every likely and unlikely source has been tapped in order to secure information or verification of unsubstantiated statements. Now that the volume has been produced, even a cursory reading reveals what a wealth of study and enthusiasm has been brought to bear upon the preparation of its pages. The author traces the need for improved communication with the north of Scotland to the shattering of the old clan system by the Rising of 1745, and it was exactly a hundred years after that date that a company was floated to build a railway from Aberdeen to Inverness; this provides the starting point for Mr. Vallance's story. In his Foreword the author says that the Highland Railway was typical of many of the smaller companies, and that, save perhaps from the scenic point of view, there was little about it that was sufficiently spectacular to command widespread interest. In so saying he is doing less than justice to the story which is unfolded in the subsequent pages, for he has succeeded in showing that the history of the Highland Railway contains sufficient of the unusual and even the heroic to sustain the interest of a reader to whom Scotland affords no particular appeal for its own sake.

The earlier part of the volume is naturally concerned with the promotion and construction of the lines; the schemes that failed; and with the threatened, though limited, competition that arose. Operating features are then treated, and separate chapters are devoted to single-line working and its difficulties; the growth of the train services, and the snow fiend. No fewer than 37 pages, apart from illustrations, are devoted to locomotives and rolling stock and to the mechanical engineers responsible for them. There are three valuable appendices: (*a*) tables of directors and chief officers of the Highland Railway and its constituent companies; (*b*) a table showing the dates of authorisation and opening of the various sections of line; (*c*) tables of distances of both main and branch lines. An adequate index completes an interesting and valuable addition to the railway historian's library.

Cold Sawing Machines.—Five types of Fluifeed cold circular sawing machines are described in a new illustrated catalogue published by Noble & Lund Limited, Felling-on-Tyne. These are of the circular saw type, with a special feed that automatically adjusts itself to the section being cut and materially increases the life of the blade. The drive is by constant-speed motor through vee-ropes and a final transmission of spur gears. All fast-running shafts are mounted on ball-bearings. Four rates of speed are provided. The automatic feed control is derived from a self-contained oil pump feeding to a cylinder on the machine, and may be set by the operator for any speed from zero to maximum simply by moving a lever. The saw-blade diameters supplied as standard with the five sizes of machine are 54 in./60 in., 40 in./48 in., 30 in./38 in., 24 in./28 in., and 11 in./16 in. In the last-quoted type, an 18-in. dia. blade can be accommodated in special cases to provide an increased cutting capacity. The catalogue also lists a saw-sharpening machine for segmental blades, and briefly describes a series of special Fluifeed saws designed to meet particular requirements.

Searchlight Signal.—An addendum sheet issued by the Siemens & General Electric Co. Ltd., for its Pamphlet No. C2, describes a modification in the design of the company's a.c. searchlight signal to conform with the new standard specification for signal lamps.

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THE SCRAP HEAP

An American mechanics' magazine has just suggested that the conning-tower driving cabins of the celebrated Bugatti railcars in France would be ideally suited for the mounting of light cannon to be used for defence or offence.

* * *

JAY GOULD AND THE EGGS

A correspondent sends us the following story about Jay Gould, the American railroad financier, who he describes as having "died, unlamented, on December 2, 1892, worth some $100,000,000." The story concerns one of Gould's prospecting trips in the '80's. When the party was in Texas, a stop was made at a farm along the line of railroad to get some fresh eggs and milk. The farmer supplying them asked $50 a dozen for his eggs. Jay Gould demurred at this, and remarked that eggs must be very scarce to command such a price. "No," said the farmer, "there are plenty of eggs round here, but fellows like you, that can afford to pay the price, are scarce." "That," he continued, "is why eggs are $50 a dozen on this joyful occasion."

* * *

Boring has commenced to ascertain the practicability of a tunnel under the Solent, so as to effect a railway communication with the Isle of Wight. The borers are at work at Stone's Point, near the mouth of the Beaulieu River, on the Hampshire coast, opposite Cowes. They have gone down fifty feet, and have reached a layer of clay. The depth of the Solent near the spot is about thirty-six feet.—*From "The Daily News" of February 14, 1874.*

* * *

Anthony Trollope did much of his writing in the train, as his position in the Post Office entailed much travelling. He adopted a system of "railway carriage" writing, and, after a little practice, was able to write as quickly in a train as he could at his own desk. He says, in his autobiography: "I worked with a pencil, and what I wrote my wife copied afterwards. My only objection to this practice came from the appearance of literary ostentation, to which I felt myself to be subject when going to work before four or five fellow passengers. But I got used to it."

* * *

I've travelled in an empty open-sided wood truck, sitting on a log lent by a friendly engine-driver from his firebox.—*Miss Olive Lodge, in "How I Saw Jugoslavia on Pony-Back."*

* * *

The train stopped at every station, and in between, and at length came to a full stop in the open country. After a long wait, a woman put her head out of a carriage window and asked the guard if she could pick some flowers. "Don't you see there ain't any flowers about here, mum?" he said. "Yes," said the woman, "but that doesn't matter. I've got a packet of seeds with me."

* * *

AN EARLY RAILWAY POEM

An early railway poem was that written by Charles Ramm Kennedy, and published by Moxon in 1843. This poem was included in a collection of miscellaneous poems, and is entitled, "The Railway." It is planned to give a description of a railway journey, with observations on the various objects presented to the traveller; and reflections on human life. In character it follows very closely Schiller's "Song of the Bell," and the metre is well adapted to the subject as will be seen from the following three opening verses:—

I hied me to the railroad, and with wonder and delight
I looked upon the bustling scene that broke upon my sight;
A motley crowd—the young, the old, the busy and the gay,
And carriage close to carriage link'd in long and bright array.
The brass-ribb'd engine stood in front, and fiery red it shone,
And spat forth hissing steam, as if impatient to be gone;
The signal rang; and like a ship just launched into the main,
With unimpeded easy march majestic moved the train.
But soon its course grew more and more impetuous and strong,
And soon its full-collected force in thunder roll'd along;
And swifter than the swiftest wind that flies from pole to pole,
Thought after thought incessantly came rushing on my soul.

One Hundred Years Ago

Extracts from the January, 1839, issue of "The Railway Magazine" (afterwards "Herapath's Railway Journal") and the oldest constituent of THE RAILWAY GAZETTE

Brussels, December 10.—The iron railroad from Brussels to Quievrain is proceeding in a very satisfactory manner, and the time is not distant when our railway will reach the frontier of France.

Greenwich Railway.—The remaining part of this line from Deptford to Greenwich was opened to the public on Monday last, December 24. We understand the company have contracted for the supply and maintenance in perfect repair, of carriages, at 2-5ths of a penny per passenger per mile. Though the contractor will do well by this, it is, nevertheless, a very wise and economical measure on the part of the directors. Let them add to this a judicious contract for the locomotive power, and the directors will deserve the lasting gratitude of the shareholders. Arrangements have also been entered into with an omnibus proprietor, as to taking such passengers as need to and from the Greenwich terminus to Woolwich, Blackheath, and Lewisham, for 6d. each. This, too, on many accounts, we approve. So far we admire all that has been done, but we now beg to call their serious consideration to the policy of raising the fares from 6d. to 8d. and 1s. We fear, with the steam-navigation against them, that they will lose more in numbers than they will gain in price; but we shall see. From January 1, 1837, to December 17, 1838, that is, 1 year 11½ months, they have carried 2,974,801 persons, and without a single accident to either. Where are the stage-coaches that can say the same, or anything like it?

Brunswick, December 8.—The first section of the iron railroad from Brunswick to Harzburg (that from Brunswick to Wolfenbuttel) was opened on November 30. The Duke himself was present on the occasion, and the train, consisting of five carriages, set out at 12 o'clock, and reached Wolfenbuttel (seven English miles) in twenty minutes. The Duke, the Ministers of State, and other distinguished persons, were highly pleased with the result of this trial, which was loudly cheered by the crowd that had assembled to witness the novel sight. On the return, it was resolved to divide the train between two machines, in order to try their power and the goodness of the road. Their progress was accelerated as much as possible, and the seven miles were passed in ten minutes. The road was opened to the public on the 1st instant, and in the seven first days there were 6,527 passengers, and the number would have been much greater, did not the shortness of the days prevent the trains from going more than four times in the day, backwards and forwards.—*Hanover Gazette.*

Railway Communication with Ireland.—We hear that Mr. Stephenson has gone over the line from Wolverhampton to Porth Dynllaen, recommended by the Irish railway commissioners; and also the line from Chester by the north coast of Wales, through Flint, Abergale, Conway, and Bangor, to Holyhead. The first mentioned route he pronounces impracticable; the latter, he says, is of easy attainment, the whole line being nearly on a water level, and would be entirely so, but for the necessity of passing over the Bangor Suspension-bridge, which will be the summit of the line. He proposes taking the carriages over separately by horse-power. He also is adverse to any line passing through a country liable to any continued deep snow, as would be the case if it were carried more inland.

Portsmouth and Horsham Railway.—We understand that for the present this line is not to be prosecuted.

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Proposed Unified Working of C.A.R. and B.A.P.R.

In connection with the reference made by the Chairman of the Buenos Ayres & Pacific Railway, Mr. J. A. Goudge, at the annual meeting held in London on November 1, to a scheme for co-operative working between his own and the Central Argentine Railway, the General Manager of the B.A.P.R., Mr. M. F. Ryan, in a recent interview given to *The Buenos Aires Herald*, briefly outlined a few of the proposals under consideration.

Mr. Ryan said that for some considerable time the managements of the two railways had been working in close relationship to each other with a view to pooling their resources and eliminating duplication where possible. At Junin, where formerly each railway had a separate station, that belonging to the B.A.P.R. was now used by both companies, the site on which the C.A.R. station stood having been sold to the municipality. It was hoped that similar economies and co-operation in working would be effected at Villa Maria, Rio Cuarto, and Rufino, where each company had its own station.

Common Offices and Reception Yard Proposed

Mr. Ryan pointed out that co-operation between the two managements would be greatly facilitated if both were under one roof, and the possibility of centralising the offices of both railways in one large building was being studied. The site considered most suitable for this purpose was near the Central Argentine Retiro terminus, between Calle Maipú and the Avenida Leandro N. Alem. The offices at present occupied by the two staffs in the centre of Buenos Aires would then be sold.

If the expense was not too great, it was also planned to construct a common reception yard for the two railways at Retiro (Central) with facilities for stabling and coach-washing. A simple junction at Maldonado, some 5 km. from Buenos Aires, would make it possible for B.A.P.R. goods trains to run in over the C.A.R. line. Asked regarding the possibility of the two railways sharing one passenger station, Mr. Ryan replied that, for the present, such a scheme would not be entertained, as the small savings which would be made thereby would not justify the great expense of adding two platforms to Retiro Central station and moving all the tracks of the B.A.P.R. between Maldonado junction and Retiro. Amongst other schemes for collaboration between the two railways, Mr. Ryan mentioned that the rail-welding plant recently installed by the C.A.R. at Victoria was also being used by the B.A.P.R.

Exchange of Locomotives

For trial purposes, Mr. Ryan stated, the two railways would exchange locomotives in the near future, and the technical staffs of both companies were collaborating with a view to standardising bridges, coaches, locomotives, and railcars.

In conclusion, Mr. Ryan said that he was not in a position to make any statement as to the future. The possibility of amalgamation would depend entirely on the London boards; but, if such a step were contemplated, great difficulties would yet have to be overcome. For the time being, the two managements were pooling resources solely for reasons of economy, that task being greatly facilitated by the fact that Mr. W. Howard-Williams, C.B.E., the Chairman of the C.A.R., was now also Vice-Chairman of the B.A.P.R.

NEW ZEALAND

New Railway Construction

The East Coast (North Island) railway construction to connect Napier with Wairoa and Gisborne, which suffered serious set-backs because of exceptional floods recently, is now progressing rapidly. The section under construction passes through some of the most difficult country in New Zealand. Phenomenal floods last winter created unprecedented difficulties, and much of the formation work was destroyed so completely that construction work had to be begun all over again. In spite of this and the large amount of tunnelling to be done, it is anticipated that the whole line will be ready for service by the end of April, 1941. The total length of tunnels on the Wairoa—Gisborne section will be 20,660 ft. and so far excavations total 7,739 ft.

No portion serves better to illustrate the effect of the floods than the tragic Kopuawhara valley, where 21 lives were lost when a sudden cloudburst swept down the valley in February last. In this valley, considerable lengths of service road have had to be reconstructed entirely on steep rocky hillsides, much of the road metal had to be replaced, road bridges restored, stream diversions made, electric power lines repaired, camps shifted, and railway cuttings cleaned out and embankments restored. All along the route the steep hillsides are scarred by numerous slips, and in many cases additional land has had to be taken, and thickly planted with willows in order to stabilise the slips.

Another aspect of the work that illustrates the difficult nature of the country is the number of bridges required. At the Gisborne end there will be 18 bridges in 15 miles, and the total length of bridges over the whole section will be 4,580 ft.

New Carriages

A series of new first class carriages is now being tried out on the Wellington—Auckland Limited express, having beige leather seats of a new type and ceiling, walls, floor coverings, and fittings in matching colour. The carriages, which are of two types, a semi-sleeper and a day car, have been built at the Otahuhu (Auckland) workshops. For the South Island service, day cars of the same type have been turned out at Addington, Christchurch. Some of the semi-sleepers—half of each car is divided into sleeping berths and the remaining portion contains day accommodation—have already been brought into use on the New Plymouth express. [The interior of one of them was illustrated on page 65 of our 1938 Overseas Railways Number.] Each contains 11 first class seats and five two-berth sleeping compartments, all finished in a pleasing shade of green; the day cars have 31 seats.

A system of pressure ventilation is installed with filtered air, and the temperature is maintained at 70°. There are adjustable inlets for the air set at intervals along the ceiling and, with the system running normally, all the air in the carriage is changed every two minutes, but at high speed for rapid cooling the time is reduced to one minute. Care has been taken in installing the system to give plenty of fresh air without draughts.

A small innovation which adds to the convenience of day travellers is a tray folding up into the back of the seat in front of the passenger, upon which a cup of tea or book may be placed. The interior of the carriage is very attractive and the decorative scheme is a considerable advance on that of the older types of carriage.

UNITED STATES

Two Special Heavy-duty Wagons

The Altoona workshops of the Pennsylvania Railroad have recently turned out two specially strong wagons for heavy machinery and other outsize and massive loads. One is a well wagon, 52 ft. 8 in. long and 10 ft. 5 in. wide. The well is 25 ft. 2 in. long, 7 ft. 8 in. in width, and 2 ft. 4¾ in. deep, so that its floor is only 1 ft. 8 in. above rail level. It has a carrying capacity of 113 tons, and is of copper-bearing steel fabricated by arc welding. Two six-wheel bogies are provided, and are fitted with standard AB brakes and multi-power hand brakes.

The other is a flat truck 45 ft. long by 9 ft. 2½ in. wide, and has a carrying capacity of no less than 178 tons. This necessitates a massive steel body cast as one unit—except for steel floor plates which are riveted to it—and two four-wheel bogies at each end, the load thus being distributed over 16 points

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on the rails through the medium of as many wheels. The brake equipment is similar to that of the well wagon.

Eastern Railways' Exhibits at World's Fair

Among the historical and other exhibits in the pageant "Railroads on Parade" at the New York World's Fair, 1939 [already briefly outlined in our issue of July 29 last—ED. *R.G.*] will be the following:—

Historic Locomotives: the *Stourbridge Lion* (Honesdale, Pennsylvania, 1829), the *Best Friend* (Charleston, South Carolina, 1829), the *John Bull* (Camden and Amboy, 1831), the *Tom Thumb* (Baltimore, 1829), and the *DeWitt Clinton* (Albany, New York, 1831).

Coaches, &c.: a series of pictures contrasting the old stage coach standard of comfort with that of modern rail travel; an early coach of the "50's"; and a specially built Pullman sleeping car, having its side nearer the audience open to show the interior comfort.

Transport of Perishables: a sequence of scenes showing the rapid transport of oranges from California in refrigerator cars.

Railroad Construction: the Overland Trail, including the golden spike ceremony celebrating the completion of the first Pacific railroad.

Other notable exhibits will be (*a*) the largest steam locomotive yet built, working at high speed under its own power; (*b*) a detailed picture of railroad construction and equipment, an indoor display covering 10,000 sq. ft.; (*c*) trains sent for exhibition from Great Britain, France, Italy, Russia, and Poland, as well as those from the U.S.A. [The complete model railway "railroads at work" has already been described in these columns on July 29. —ED. *R.G.*]

FRANCE

Railwaymen Removed from Board

A Decree, published in the *Journal Officiel* of December 14, notified that the Minister of Public Works had removed MM. Jarrigion and Sémard from the administrative board of the S.N.C.F., where they represented the railwaymen. MM. Jarrigion and Sémard are the two Secretaries of the Railwaymen's Federation, affiliated with the General Confederation of Labour (C.G.T.), who signed the circular calling on railwaymen to resist the order requisitioning the railways on November 30. Another Decree removed M. Louhaux, Secretary-General of the C.G.T., from his post as member of the Railway Purchases Commission.

Leniency in Strike Penalties

M. de Monzie, Minister of Public Works, in a statement on the recent general strike fiasco, expressed his satisfaction with the spontaneous discipline of the railwaymen and their devotion to duty in compliance with the military requisition order. He said that he had asked the President of the National Railways Company (S.N.C.F.) to adopt a lenient policy and remit penalties for minor faults in connection with the abortive demonstration. Addressing the Public Works Committee of the Chamber of Deputies, the Minister said that he hoped to diminish the excessive number of railwaymen without having recourse to dismissals or measures affecting the 40-hr. working week. In reference to the strike, he added that among the railwaymen throughout France there had been only 491 cases of men infringing the requisition order. Out of this number certain cases, in which men had been involved by circumstances beyond their control, would be dealt with as leniently as possible.

Through Electric Trains from Paris to Spanish Frontier

Electrification of the line from Angoulême to Bordeaux is now completed. Early in the New Year all trains from Paris to Bordeaux and Hendaye, on the Spanish frontier, will be electrically hauled throughout.

The S.N.C.F. has also completed the electrification of the suburban extension of the line from Massy-Palaiseau to St. Rémy-les-Chevreuse, and since December 3 the Metro has been running trial services direct from Luxembourg (Paris) to St. Rémy. The trials will continue for some weeks prior to the introduction of regular electric trains, providing faster and more frequent services on the branch from Massy-Palaiseau to St. Rémy than is possible with the present steam trains.

Railway Traffic Receipts

Railway traffic receipts have continued to increase in 1938, but not in proportion to the rise in fares and freight rates. During the 48 weeks to December 2 the receipts have increased 19.33 per cent. in comparison with the previous year. The total figures are as follow in thousands of francs:—

	1938	1937	Increase
Passengers ...	3,750,756	3,144,924	605,832
Luggage ...	82,183	65,552	16,631
Parcels ...	521,132	431,499	89,633
Goods ...	9,255,423	7,758,263	1,497,160
Total ...	13,609,494	11,400,238	2,209,256

The total number of wagons loaded in the 49th week, December 3 to 9, was 315,173, against 336,388 in the same week last year. During the year to December 9 the total is 14,614,648, against 16,049,057 last year. In a survey of the goods traffic in the first half-year *France Transports* points out that receipts fell off in the first quarter because of the increase of 25 per cent. in freight rates on January 1. Many consignees had taken the precaution to order their supplies in December, 1937, in order to benefit by the cheaper transit rates then in force.

Technical Transport Committee

Under a Decree, published in the *Journal Officiel* of November 26, the Consultative Committee of the S.N.C.F. has been transformed into the Technical Transport Committee as an advisory subsidiary of the Superior Council of Transport. It appears that the Consultative Committee by reason of its too numerous members had proved ineffective in practice. The number of members is now limited to 25 in addition to 2 vice-presidents and other members who are chiefly former Ministers of Public Works and Under-Secretaries of Public Works.

The *Conseu d'Etat* (Council of State) has annulled the appointment of M. Georges Legoux as General Manager of the State Railways in succession to M. Raoul Dautry, who became honorary General Manager. The appointment was made by Decree of June 18, 1937, prior to the formation of the S.N.C.F. It was revoked on the technical ground that the name of M. Legoux was not included in the list of three names submitted to the responsible Minister, from which his choice was obligatory. The decision in no way affects the present position of M. Legoux, who when the railways were taken over by the S.N.C.F. was appointed General Manager of the Western Region.

GERMANY

Increase in Number of Long Tunnels

The absorption of Austria by the German Reich brought some of the most important Alpine lines into the Reichsbahn system, with a number of long tunnels. A writer in *Der Eisenbahnfachmann* gives the following list of German tunnels:—

	Length in yards
Arlberg	11,210
Tauern	9,296
Kaiser Wilhelm, Cochem ...	4,648
Distelrasen (Hanau-Bebra) ...	3,828
Grossherzog Friedrich (Fahrnau)	3,467
Krähberg (Odenwald)	3,318
Brandleite (Thuringen)	3,242
Rüdersdorf (Giessen–Hagen) ...	2,893
Königsstuhl (Heidelberg)... ...	2,727
Fützen (Loop Tunnel)	1,859
Sommerau (Black Forest) ...	1,856
Semmering (Summit)	1,564
Im-Weiler (Loop tunnel) ...	1,318

Baden has no fewer than 113 tunnels in its territory, five of which are over 1 km. (⅝ mile) long.

DENMARK

Longer Availability of Return Tickets

From July 1 next, all labour throughout the country will have a fortnight's annual holiday with pay, and, as a result, an organisation has been set up to arrange cheap holiday resorts, cheap travel, &c. This organisation has persuaded the State Railways to issue cheap summer 16-day return tickets —in place of the present 8-day tickets with a rebate of 25 per cent.—from May 1 to September 30.

Proposed Sallingsund Bridge

Soundings and borings are now being taken to enable an estimate to be prepared for the construction of a bridge to connect Glyngøre and Nykøbing in Northern Jutland. The intervening Sallingsund channel is 1,400 m. (4,600 ft.) wide, and connection is at present maintained across it by a train ferry. The bridge projected is to have a railway track running on the road decking.

NEW AMERICAN 5,000 H.P. TURBO-ELECTRIC CONDENSING LOCOMOTIVE

Recently completed by the General Electric Company for the Union Pacific Railroad, this design is claimed to be the most advanced of its kind in the world

By W. D. BEARCE, Transportation Department, General Electric Company

NEARLY two years have been spent by General Electric and Union Pacific Railroad engineers in designing and building a 5,000 h.p. turbo-electric locomotive for handling fast and heavy passenger trains. This locomotive, which is now completed, is to be used on the fast and heavy express passenger services between Chicago and the Pacific Coast which have to negotiate 2·2 per cent. grades without a banking engine. Climatic conditions encountered *en route* range from −40° F. in winter to 115° F. in summer. Some of the mountain passes through which the train must pass are over 8,000 ft. above sea level.

While the turbo-electric locomotive as a whole is still regarded by most engineers as experimental, the various pieces of apparatus out of which it is constructed have, for the most part, been thoroughly tried out and have demonstrated their reliability in other spheres. The assembly and arrangement of the equipment of this locomotive follow, in general, the practice in modern high-efficiency power plant work. Owing to the necessity for light weight and to limitations of space, some use has been made of experience gained in the installation of equipment on shipboard.

The boiler equipment differs from usual central station practice in the substitution of forced for natural circulation of the water through the tubes surrounding the furnace. The steam generated passes to a separator, where the excess water is removed by centrifugal action and then drained to the hot well. From the separator the steam goes through the superheaters and thence to the turbines. The exhaust steam goes to the condensers and the water returns to the hot well. The construction of this type of boiler precludes the possibility of any dangerous rupture due to any cause.

The electric motors, generators and control do not differ materially in design and construction from similar equipment supplied to trains now running. Briefly, then, the chief problem is the co-ordination of the several pieces of apparatus which go to make up the complete unit.

The operating advantages claimed for the steam-electric locomotive are as follow:—

(*a*) Thermal efficiency from fuel to the driving wheels more than double that of the conventional steam locomotive.

(*b*) Electric braking resulting in saving in brake shoes and tyres, not only for the locomotive, but for the entire train.

(*c*) High rates of acceleration and braking due to high adhesive weight.

(*d*) Capacity for 500- to 700-mile performance without stops for fuel or water.

(*e*) Elimination of corrosion and boiler scale due to use of distilled water in a closed system.

(*f*) Elimination of unbalanced reciprocating parts which set up destructive forces in the rails, road bed, and supporting structures.

(*g*) Greater availability due to the construction of the boiler and absence of reciprocating parts.

Construction of Mechanical Portion

The locomotive consists of two indentical units capable of either multiple or independent operation under the control of one driver. Each unit consists of a 2-C-C-2 running gear surmounted by a single-ended streamlined cab.

The running gear of each unit consists of two three-axle driving trucks and two two-axle guiding trucks. The truck frames are integral nickel-vanadium steel castings. All wheels are of the solid type and all journals are in anti-friction bearings. The cab is mounted on centre plates, and the platform takes the buffing and pulling stresses. A flexible metal sleeve with sliding connection supplies ventilating air from centrifugal blowers located in the cab to each traction motor. The swivel truck arrangement provides room between the driving trucks for a well-type construction containing the steam boiler in the central part of the cab.

To secure smooth running at high speeds, restraint devices are used between the main trucks and cab, and between guiding trucks and main trucks. Side bearing pads on each main truck give the cab additional support.

The cab is designed to secure the lightest possible construction consistent with the requirements of strength and rigidity. The frame is built up with high-tensile steel tubular members, and aluminium cab sheets are employed except for the streamlined nose, which is of steel welded throughout. In the fabrication of the cab, welding is largely used, except for the aluminium sheets, which are riveted in place.

The locomotive is designed for single-end operation, with streamlining to minimise wind resistance. The front coupler is normally retracted and covered by a removable panel which conforms to the streamlined contour of the pilot structure.

Clasp brakes are used on both driving and idle wheels with four shoes per wheel on the drivers. The braking on these drivers is supplied from two cylinders per axle. A new high-speed air brake equipment suitable for use with both new and conventional trains has been included.

To facilitate maintenance, provision is made for replacing any unit of the power plant or electrical equipment, including the main boiler, in a few hours. Traction motors may be removed in a drop-pit. Other equipment can be removed by a crane through the roof.

Each cab encloses the following principal elements: a complete 2,500 h.p. geared turbine-driven generator set; a high pressure steam boiler; a compactly built turbine-driven auxiliary set with full automatic control; and a finned tube air-cooled condenser with turbine-driven fans for cooling.

The design of this locomotive is unusual in many respects, some of which are:—

(*a*) The use of 1,500-lb. per sq. in., 920° F. steam.

(*b*) A type of boiler not previously used for railway service.

(*c*) Complete automatic control of boiler, auxiliaries, and power units.

(*d*) Provision for electric braking of sufficient capacity for holding trains on grades and for assistance in making service stops.

(*e*) Head-end auxiliary power for air-conditioning and other train electric service.

Many other features are incorporated in the design for the purpose of effecting economies in operation, simplify-

XUM

ing the duties of the operator, lengthening the cruising radius, and reducing maintenance cost.

This new Union Pacific locomotive is particularly adapted to lines where full electrification is not justified, but where superior passenger schedules are demanded. Each unit of this locomotive has the following ratings, weights, and dimensions:—

Wheel arrangement per unit	2-C-C 2
Total weight (in British tonnage) with full tanks of fuel and water	236 tons 12 cwt.
Weight on driving wheels	152 tons 13 cwt.
Weight per driving axle	25 tons 9 cwt.
Fuel oil capacity	2,500 gal. (Imp.)
Water capacity	3,330 gal. („)
Total length over couplers	90 ft. 10 in.
Overall width	10 ft. 8⅜ in.
Maximum height	15 ft. 0¾ in.
Maximum rigid wheel base	13 ft. 4 in.
Diameter of driving wheels	3 ft. 8 in
„ guiding wheels	3 ft. 0 in.
Rating of main turbines	2,500 h.p.
Number and type of traction motors	6-GE-725
Gear ratio 65/31	2·097
Maximum operating speed	125 m.p.h.

In order to obtain the capacity, flexibility, and efficiency essential to the best train operating characteristics, the power equipment has been designed to respond promptly to sudden demands for power. The rate of firing therefore increases and decreases automatically with the load demand.

Steam Boiler

The steam boiler and automatic control equipment were designed and built by Babcock & Wilcox and the Bailey Meter Company, builders of boilers and steam control, in collaboration with General Electric. The boiler is a water-tube forced-circulation type, compactly built, incorporating a furnace, superheater, economiser, air pre-heater, and burners for Bunker C fuel oil. Special provisions are made to withstand shock and vibration resulting from the movement of the vehicle over the rails.

By replenishing water losses in the closed system with evaporator steam, practically all scaling and corrosion of the tubes are eliminated. The construction of the boiler unit and its 3-point supports furthermore avoids distortion of the tubes due to normal movement of the locomotive.

The economiser is an integral part of the boiler and utilises waste heat for increasing the temperature of the boiler feed water. Several boilers of this type have been built by Babcock & Wilcox and are successfully handling commercial service in stationary plants.

For starting the locomotive when cold a small vertical fire-tube boiler with a capacity of 100 lb. of steam per hr. is provided, using propane gas for fuel. This boiler supplies steam for heating the fuel oil and atomising the oil at the burners when starting the main boiler. The auxiliary boiler is designed for a pressure of 75 lb. per sq. in., and is used only for starting when an outside supply of steam is not available. Where steam can be secured at a roundhouse or from an external source the main boiler can be started without the use of this auxiliary.

Main Turbine and Auxiliaries

The main turbine generator set consists of the following elements:—

(*a*) High- and low-pressure turbines.

(*b*) A two-armature direct-current generator driven through a gear reduction approximating 10 to 1 from these turbines. This generator is self-ventilated from a fan located between the armatures, the air being drawn in through the commutator risers and discharged at the centre through the roof of the locomotive. In cold weather this warm air can be utilised for cab heating.

(*c*) A 220-volt 3-phase alternating-current generator connected to the main generator shaft through a flexible disc coupling. This alternator furnishes power for train air-conditioning, traction motor blowers, and other accessories.

(*d*) A variable voltage exciter, the armature of which is mounted on the same shaft as the alternator. This machine supplies excitation for the main generator during motoring, and for the traction motors during electric braking.

The auxiliary set is a variable-speed unit driven by a turbine which takes steam extracted from the main turbine. Its speed therefore varies somewhat with the traction load on the main turbine. This speed is further controlled automatically in accordance with the steam demand from the main boiler. Its function is to supply and regulate the combustion air and fuel oil delivered to the furnace, and also to supply feed water in proportion to the demand for steam. The complete set consists of a starting motor, an auxiliary turbine, combustion air fan, boiler feed pump, and fuel oil pump.

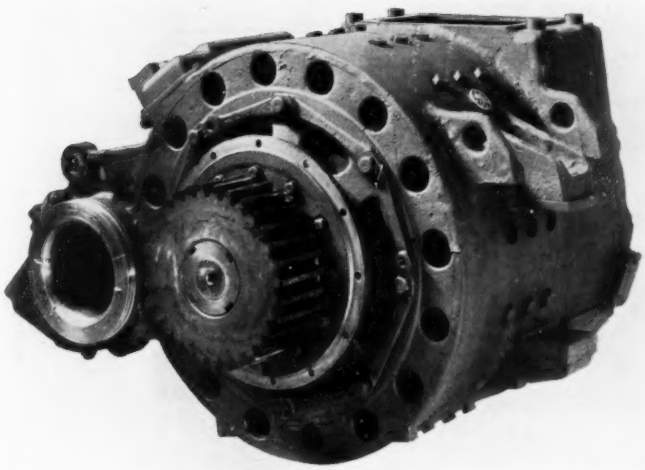
The lubricating pump for the auxiliary set is of the rotary-type, independently driven by a direct-connected 125-volt direct-current motor. This pump is used for circulating lubricating oil to the reduction gearing, gear shaft bearings, turbine bearings, and feed water pump bearings. The circulating oil is cooled by radiators located with the condenser units. The condenser fan turbine is also independent of the auxiliary set drive, but is mounted on the same support. This turbine operates at a variable speed which is dependent on the condensation requirements but has a maximum speed of about 12,000 r.p.m. The condenser is mounted on each side of the rear end of the locomotive cab, and consists of finned-type vertical tubes. Headers at the top receive the exhaust steam from which the condensate is drained by gravity to a sump-tank under the locomotive cab. Ventilation for the condenser is provided by turbine-driven propeller-type fans drawing air through the sides of the locomotive and discharging it through openings in the roof.

As a part of the condenser equipment there is a steam-operated vacuum ejector for extracting small quantities of air which may leak into the closed system. This ejector normally will function under partial vacuum conditions down to 5 lb. per sq. in. absolute.

In normal operation the condensed water in the tank under the locomotive cab is maintained at a constant level by a float switch. Provision is also made for the addition of make-up water as required. Water from this tank is pumped into another tank located high in the cab, using a centrifugal type pump. In normal operation the upper tank will be kept full, the excess water overflowing and returning to the lower tank. Another pump transfers the water from the upper tank to the suction side of the feed water pump. From this point the water passes through the feed water heater, the economiser, thence to the boiler tubes and then to a separator drum, from which excess water is returned to the sump. The steam passes through the superheater and turbines and back to the condensers.

A continuous supply of low-pressure steam is required for train heating, the operation of the air compressor turbine, and for heating fuel oil. For this purpose a heat exchanger or evaporator is used, consisting of a coil immersed in raw water. This coil takes steam either direct from the main boiler or by extraction from the main turbine. In either case the pressure is reduced before entering the coil. Water is supplied to the evaporator by three reciprocating pumps driven by direct-current motors.

A 150-cu. ft. double-stage air compressor designed to supply 125-lb. to 135-lb. pressure is driven by a steam turbine operating at 200-lb. pressure and driving through a reduction gear. This compressor set is regulated by a governor which operates a shut-off valve in the turbine supply, starting and stopping the set as required. A



Nose-suspended d.c. traction motor

Low-speed gear for main unit of locomotive

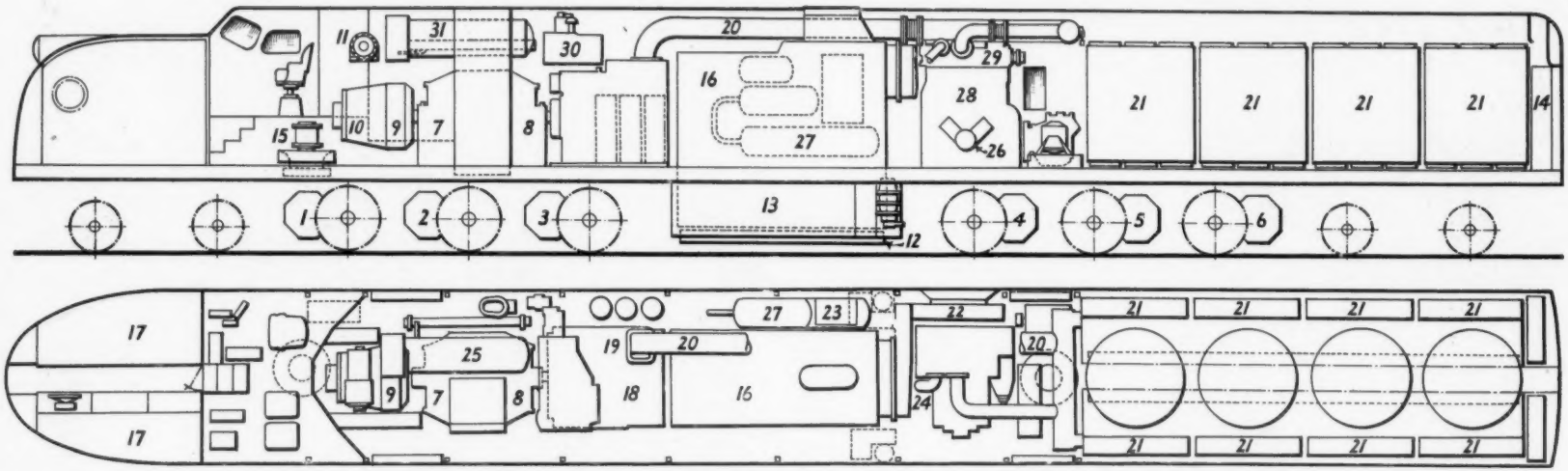
15-cu. ft. compressor supplying air at 90-lb. pressure and operated by a 125-volt direct-current motor is provided for supplying air for operating the Bailey regulating devices and control equipment during starting when no steam is available for operating the turbine compressor set.

Electrical Circuits

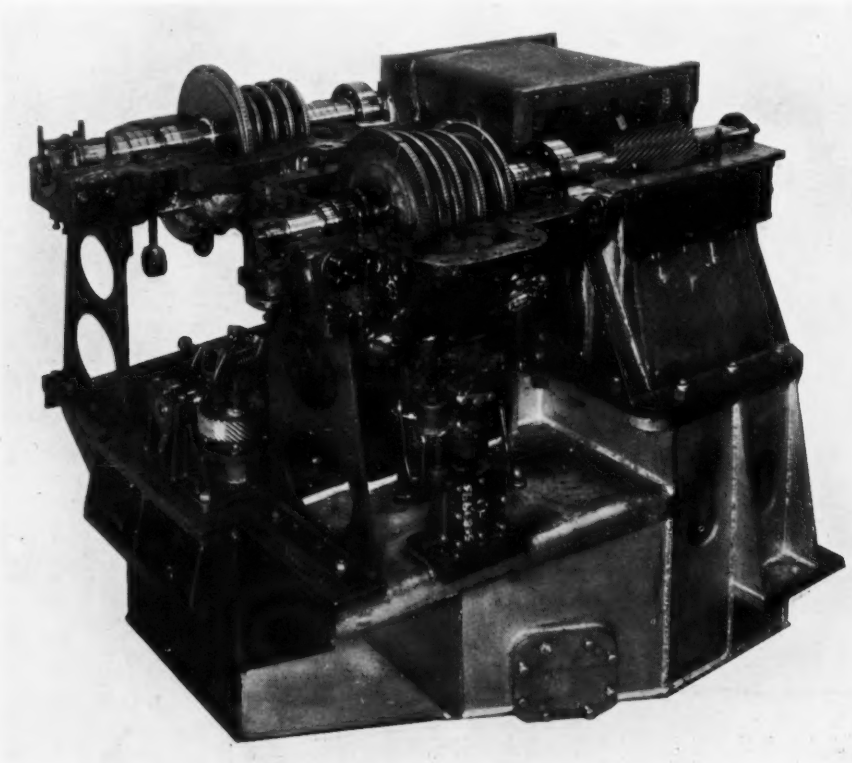
This type of locomotive is essentially an electric locomotive carrying its own power plant. Since the main generator, however, is used solely for furnishing power to the traction motors, advantage is taken of the opportunity to regulate the train speed by varying the generator voltage, thus avoiding rheostatic losses. Acceleration of the train, therefore, is effected by controlling the current in the exciter field by means of the master controller, thus regulating the field current in the main generators. The main generator current is thus supplied to the axle-hung, geared traction motors at varying voltages, depending

View in cab showing train control fittings

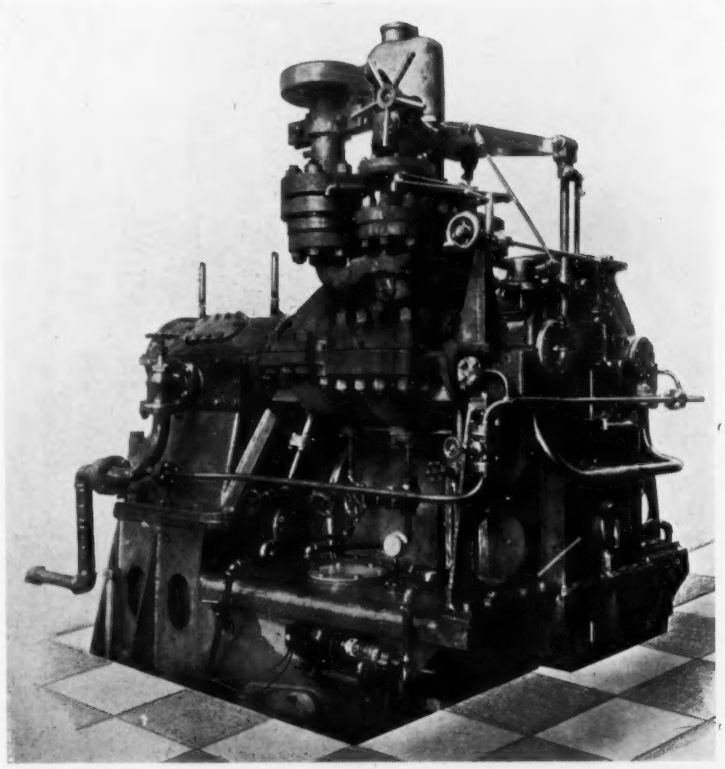
Driver's compartment



1–6 Traction motors
7–8 Main generators
9 Alternators
10 Exciter
11 Battery charging set
12 Braking resistor
13 Main control contactors
14 Battery
15 Traction motor blower
16 Boiler
17 Raw water tank
18 High-pressure main turbine
19 Low-pressure main turbine
20 Exhaust header
21 Air-cooled condensers
22 Boiler draught fan
23 High-level condensate tank
24 Braking resistor separator
25 Train heating evaporator
26 Feed-water pump
27 Feed-water heater
28 Boiler auxiliary set turbine
29 Condenser fan turbine
30 Compressor



Steam turbine and gear with casing top removed



Oblique side view of complete unit

NEW TURBO-ELECTRIC CONDENSING LOCOMOTIVE FOR THE UNION PACIFIC RAILROAD

Built by the General Electric Company, Schenectady, New York

upon the demand for power and speed. Control current is supplied by a 125-volt motor-generator set with a battery floating on the line. Both acceleration and electric braking are regulated indirectly through the master controller.

This master controller includes an accelerating handle, an electric braking handle and a reverse handle. The reverse handle is also used as a selector handle for motor combinations in each direction. Provision is made for operating the motors in three combinations—series, series-parallel and parallel. Both the accelerating and braking handles normally hold a fixed kilowatt load on each controller step, except during the first few motoring steps, where approximately constant tractive effort increments are obtained.

The primary power for the auxiliaries is supplied by the a.c. generator. In addition to the operation of the two traction motor blowers this unit also supplies the motor-generator sets, supplying 125 and 64 volts d.c. Lighting circuits and headlights are also supplied from this a.c. source. Plug receptacles on the exciter of the locomotive at both sides permit obtaining alternating-current power from an outside supply. The 64-volt motor-generator set supplies power for the standard train circuits.

Automatic Control Features

The power plant is entirely automatic in operation and there are no power plant pressure or temperature gauges in the operating cab. These devices are located on a control board situated in the apparatus cab. In the event of the operation of any of the protective devices, a warning gong rings in the apparatus cab and an indicating lamp shows at the driver's position.

Automatic train control and cab signal equipment of the continuous type with suitable inductors for operation over Union Pacific lines are installed on both units.

The mechanical and electrical parts of this locomotive were manufactured in the Erie plant of the General Electric Company, the boiler was supplied by the Barberton plant of the Babcock & Wilcox Company, and the boiler control devices by the Bailey Meter Company, of Cleveland. The locomotive is now undergoing tests, upon completion of which it will be placed in regular service by the Union Pacific Railroad.

WAGONS FOR SOUTH AFRICA

An order for 1,300 cattle wagons and 20 bogie underframes placed by the South African Railways with a Continental firm

IN September, 1937, the South African Railways placed with the Ateliers de Construction de Familleureux, of Familleureux, Belgium, an order for 300 four-wheel cattle wagons for the 3-ft. 6-in. gauge. Three months later a further order was received from the administration for 1,000 more vehicles of the same type. The value of the two contracts was approximately half a million pounds, and the combined order for the 1,300 wagons is believed to be the largest contract for one type of wagon to be placed by an overseas railway with a Continental firm since the war.

One of 1,300 cattle or coal wagons recently supplied to the South African Railways

The cattle wagons can also be used for the transport of coal, two hatches for loading being provided in the roof. The underframe and body framework are of steel, and the sides, ends, roof, and flooring of pitch pine. The doors and roof hatches are of pressed steel. Most of the steel is of British manufacture. The wagons measure 22 ft. over the headstocks and have an 11-ft. wheelbase. The width over cantrails is 7 ft. 11½ in., and the height from floor to cantrail 6 ft. 8 in. With a tare weight of 10·3 tons, the wagons have a capacity for 8 head of cattle, or 42,000 lb. of coal.

Westinghouse automatic vacuum brake gear was fitted on 300, and the Consolidated Brake & Engineering Co. Ltd. supplied the vacuum brake apparatus for the 1,000 wagons. Atlas automatic couplers were fitted to all the wagons, and rubber drawgear was supplied by George Spencer, Moulton & Co. Ltd.

Delivery of the wagons was due to begin on April 8 of last year, at a rate of 50 wagons a week, and although the final batch arrived five days after the date orginally fixed—October 24—the company was well within schedule on account of an extension of time necessitated by developments while delivery was taking place. The close adherence to the first requirement was achieved despite some delays in the supply of steel, and the disturbances arising from the international crisis during September of last year.

The same firm has also recently supplied to the South African Railways 20 bogie underframes for refrigerator wagons, fitted with automatic vacuum brake and Atlas automatic couplers. The underframes are 40 ft. long and 8 ft. wide over solebars.

C. M. Hill & Co. Ltd., Coventry House, South Place, London, E.C.2, is the General Agent for the Familleureux Company for the British Empire.

RAILWAY PERSONALITIES OF 1839

By GEORGE J. S. KING

THE outstanding railway personality a century ago was George Hudson, the " railway king," who was Lord Mayor of York in 1839; on May 29 the railway from York into the West Riding (of which line he was Chairman) was opened. It was the year of the passing by Parliament of penny postage, and the occasion was a great triumph for its originator, Sir Rowland Hill, who subsequently became Chairman of the London & Brighton Railway Company, and fostered cheap excursions and express trains. Another name, destined to become a household word, which came before the public in 1839 was that of the Quaker, George Bradshaw. Although there are strong reasons for believing that he produced a local Manchester timetable in 1838, his first general timetable—the predecessor of the famous *Bradshaw*—appeared in October, 1839.

Thomas Drummond (who had been acting practically as Governor of Ireland) retired in 1839. He had presided over a Railway Commission, at which proposals were made for the construction by the State of trunk lines from Dublin to Cork, with various branches, but owing to political and private jealousies this was not carried out. John Pitt Kennedy (who later, as Consulting Engineer for Railways to the Government of India, laid plans for a railway system throughout India) resigned office in 1839 as Inspector-General under the Irish National Education Department. Another celebrity associated with railways in the Empire was Sir Adam Archibald, who was called to the Nova Scotian Bar in 1839. He represented Nova Scotia at Quebec at a conference respecting a Canadian railway scheme, and became a director of the Canadian Pacific Railway.

There was held in Ayrshire in August, 1839, what was, perhaps, the outstanding social event of the early nineteenth century—the famous " Eglinton Tournament," in which, at fabulous cost, an attempt was made to revive the pageantry of the mediæval tournament. Two years had been spent in preparations, but the pageant was practically ruined by rain. Even the sumptuous banquet was spoiled because the pavilions were flooded. It was, however, a case of " 'Tis an ill wind," for 200,000 people poured into Ayrshire, and the Ardrossan Railway Company, with resourceful opportunism, trebled its fares. Thomas Russell Crampton (designer of the Crampton locomotives) became in 1839 assistant to the elder Brunel, and to Daniel Gooch, on the G.W.R. He designed the Smyrna Railway, and the Varna Railway, and also various lines in Kent, which became merged in the London Chatham & Dover Railway. Sir William Tite became a century ago a Fellow of the Society of Antiquaries. He designed many of the early termini, including the L.S.W.R. at Nine Elms and Southampton, the Citadel station at Carlisle, and most of the stations on the Caledonian and the Scottish Central Railways, including Princes Street station, Edinburgh. He also designed the terminus at Blackwall, and stations at Chiswick and Windsor, on the Exeter-Yeovil Railway, and on that from Havre to Paris.

It was in 1839 that Euston station—the first in London with any architectural pretensions—was completed to the design of Philip Hardwick. Richard Grenville, Earl Temple (who was later third Duke of Buckingham and Chandos, and became Chairman of the L.N.W.R.) became Marquis of Chandos when his father succeeded to the dukedom in 1839. George Barker (who was chiefly responsible for the charter for that " gigantic absurdity," the London & Birmingham Railway) was elected that year a member of the Royal Society.

John Davison Rockefeller, the American millionaire monopolist, was born on July 8, 1839. In 1872, after he became President of the Standard Oil Company, he made an agreement with the Pennsylvania, Erie, and New York Central Railroads to allow large rebates on oil shipped for members of the association he formed, and to give " drawbacks " on all oil carried for competitors. He then approached the 26 companies in Cleveland with offers, and 21 accepted. Within three months public opinion forced the railways to repudiate the agreement, but by that time Rockefeller had complete control of oil refining in Cleveland. That famous engineer, Sir Alexander Richardson Binnie, was born on March 26 a century ago. He began his career in Wales, on railway construction, and his discovery (in conjunction with Major Lucey Smith) of coal at Warora, in the Chanda district of India, led to the building of the Wardha—Warora branch of the Great Indian Peninsula Railway. As chief engineer (from 1890 to 1901) of the L.C.C., he superintended the Blackwall and Greenwich tunnels.

Sir William Arrol was born on February 13, 1839. He founded the firm of William Arrol & Co., which built the second Tay, the Forth, and the Tower bridges. Leveson Francis Vernon-Harcourt (born January 25, 1839) was one of the outstanding engineers of last century, and became in 1872 Resident Engineer of Rosslare Harbour and the railway to Wexford. Edward James Watherston (also born in 1839) was a pioneer of technical education, and was author of " Our Railways; should they be Private or National Property? "; " Our Railways; Rates and Fares," and " Our Iron Highways."

Horace Bell, a famous civil engineer, was born on June 17 a century ago, and was for 32 years connected with various Indian railways as Executive Engineer, Chief Engineer, Consulting Engineer, and, finally, Director-General of Railways. His first work in India (in 1866) was on the Chanda Railway survey; in the '70's he was engaged on four State railways—Indore, Punjab Northern, Rajputana, and Neemuch—and received the congratulations of the Viceroy on the opening of the Punjab Northern. From 1881 to 1884 he was Chief Engineer of the Dacca—Mymensingh Railway surveys, following with the survey of the Tirhoot State Railway, of which he was for a time Manager. He was thanked by the Government in 1887 for his services on the Gonduck bridge on the Tirhoot Railway. There followed a period as Engineer-in-Chief of the surveys for the Great Western of India, and the Mogal—Serai line, and he became Consulting Engineer to the Indian Government for State Railways. His published works included " Railway Policy in India." After his retirement he was responsible in 1897 for the Southern Punjab Railway (5 ft. 6 in. gauge) and the Nilgiri mountain railway, a metre-gauge railway opened in 1899.

Another celebrity noted for railway work in India was Sir Francis Langford O'Callaghan (born on July 22, 1839) who, like Bell, was connected with railways in that country for 32 years, and (again like Bell) became Consulting Engineer to the Government of India for State Railways. He was Director of the Burma Railway Company, and the Egyptian Delta Light Railways Company. He designed and partly constructed railways in Sind, and the railway through the Khojak pass to the frontier of Afghanistan. O'Callaghan was decorated with the C.I.E.

for building the bridge over the Indus at Attock, the C.S.I. for construction of the railway through the Bolan pass to Quetta, and finally the K.C.M.G. for the Uganda Railway, in 1902. He was specially thanked in 1887 for the construction of the Victoria bridge at Chak Nizam, on the Sind—Sagor line.

Other celebrities associated with Indian railways who were born in 1839 were: Colonel John Henry Rivett-Carnac, who became a Special Commissioner in India, and issued reports on Indian railways; Robert Steel, C.S.I., Director of the Delhi Umballa Railway Company, and a member of the Viceroy's Legislative Council of India; and Sir James Browne, who was Superintendent of Works for the construction of the Indus bridge, was Engineer-in-Chief of the Sind—Pishin Railway, and became Quartermaster-General in India.

Valentine Graeme Bell was born on June 27, 1839, and became famous as Director of Public Works in Jamaica. From 1863 to 1865 he was Resident Engineer on the Cleveland Railway, and from 1869/70 was employed in Paris on the Mont Cenis Railway. In Jamaica he reconstructed the Government Railway from Kingston to Spanish Town, and extended it to Port Antonio. In 1889 he opposed the transfer of the Government Railways to an American syndicate; they were sold, but the venture proved a failure, and the Government took possession again in 1900. On October 25 occurs the centenary of the birth of Professor Robert Thurston, who founded (in America) the first mechanical laboratory for research in engineering, and was author of a "History of the Steam-Engine." Another American celebrity born in 1839 (on December 8) was Alexander Johnston Cassatt, President of the Pennsylvania Railroad Company. He entered that company's service in 1861, and became its chief 43 years later. Meanwhile he held appointments with the Philadelphia & Trenton Railroad, and the Philadelphia & Erie Railroad, returning to his old company in 1867 as Superintendent of Motive Power and Machinery.

Some other notabilities born in 1839 may be mentioned briefly. Thomas Wrigley Grimshaw (November 16) was Registrar-General of Ireland, and published official Railway Reports. Sir Robert Samuel Wright (the Hon. Mr. Justice Wright) was Ex-Officio Commissioner for England of the Railway & Canal Commission. Sir Spencer Walpole (February 6) was Governor of the Isle of Man, and a Director of the London & Brighton Railway Company. John Mountney Lely (August 12) edited "Hodges' Law of Railways." William Trotter (July 7) was Deputy Chairman of the Hull & Barnsley Railway Company, and became Manager of the Stock Exchange. Mention of the Hull & Barnsley Railway recalls also the centenary of the birth of Colonel Sir Gerard Smith, Governor of Western Australia, for in 1879, when a banker at Hull, he suggested the idea of that railway in order to break down the North-Eastern Railway monopoly, and became its first Chairman.

Finally, the British railway industry possesses in the person of Mr. H. G. Drury a living link with 1839, for he was born on September 16 a century ago, and although retired since 1904 is still happily with us. We make further reference to Mr. Drury in an editorial note on page 1.

SIXTY YEARS OF FIRST AID ON THE RAILWAYS

The part played by railways and their staffs in a vital social service

IN an age when the trained first-aid worker is regarded as an essential part of our modern life, it is perhaps of interest to recall the fact that the British railways were the pioneers of industrial first aid. What is generally understood by the term "first aid to the injured" has been defined as "a special branch of practical medicine and surgery, by a knowledge of which trained persons are enabled to afford skilled assistance in cases of accident and sudden illness." The first-aid movement dates from the year 1877, when the St. John Ambulance Association was inaugurated, and it was in the spring of the following year that the first ambulance class composed entirely of railway employees was held at Paddington station. The following is an extract from the first annual report of the association:—

> A railway class at Paddington commenced on April 13, 1878, under the supervision of Superintendent Craig and instruction of Mr. Manders of St. Mary's. The number of pupils was forty.

Thus began the great humanitarian movement which has grown from strength to strength, until in the present year, which may be regarded as the diamond jubilee of railway first aid, it can be said that there is hardly a station or railway workshop which has not its complement of skilled ambulance men.

The movement appears to have been generally esteemed and encouraged by the principal railway companies, although the formation of classes was left in the earlier years in some measure to the employees themselves. Towards the close of the century there was a quickening of interest. The advantages of a first-aid training were being more fully recognised, and the principal main-line companies became railway centres of the St. John Ambulance Association, thus acquiring a certain measure of home rule in carrying on the movement. The change was immediately reflected in a substantial increase in the number of railway employees qualifying in first aid.

With the formation of the centres, the railway companies undertook to bear the cost of medical instruction and the provision of equipment, and as time went on the maintenance of first-aid efficiency was rewarded by the granting of certain facilities and concessions. As can well be appreciated, a movement of this kind had its limitations in maintaining the interest of all grades of employees, but this deficiency was supplied by the organisation of a series of ambulance competitions on the various railway systems. This innovation received a considerable impetus when, in 1897, the St. John Ambulance Association instituted an inter-railway competition for its challenge shield and prizes. Contests for this much-coveted trophy have been held yearly except during the years of the great war. Interest in the competition side of the movement begins annually with a series of contests organised by each of the railway companies, and works up to the grand finale at the Wharncliffe Rooms, London, where the competition for the blue riband of the movement is conducted. No one who has witnessed an inter-railway competition and noted the enthusiasm of the spectators need have any doubts as to the vitality of the movement.

First-aid work makes a direct appeal to the natural instinct of service to one's fellows, and it is this spirit of self-abnegation which attracts railwaymen to it in such large numbers. Here is a movement carried on with very little publicity or ostentation, yet year by year the railways record increases in their ambulance personnel, and it may

here be noted that last year upwards of 25,000 railwaymen passed an examination in first aid. An interesting feature is the way in which members of the staff come up year by year for their annual efficiency tests, and today there are in the railway service thousands of men holding their respective companies' long-service medals, granted for periods of efficiency from 15 to 40 years. Surely, this is eloquent tribute to the continued sacrifice of their leisure time by railwaymen in order to equip themselves to assist suffering humanity.

Evidence of the value of first-aid training is provided daily on the railways, and it is difficult to form even a rough estimate of the suffering mitigated and lives saved by the prompt and skilled treatment afforded by railwaymen. Not only is this true of accidents occurring on the railways, but these " Good Samaritans " are often called on in their off-duty hours to render similar aid to road victims. Many outstanding examples of service might be quoted, but possibly the Senghenydd colliery disaster of October, 1913, in which more than 400 men perished, should be mentioned. To the general call made in the neighbourhood for ambulance assistance, none responded with more alacrity than railwaymen. Out of 27 men who presented themselves for duty, 11 remained during the night, and in the small hours of the morning 10 joined the rescue party in descending the pit. They assisted in bringing 18 survivors to the surface, and subsequently seven miners who had succumbed.

The value of the movement from a national point of view was particularly demonstrated at the outbreak of the great war, when the immediate call for recruits for the R.A.M.C. found a ready response from the railways, whose trained ambulance men were invaluable. It is not perhaps generally known that the need for A.R.P. instructors was to a considerable measure met by the railway companies, who arranged for some of their more prominent ambulance workers to undergo training in A.R.P. work as early as 1936, and these helped to form the nucleus of the trained instructors whose services were in such pressing need in the recent crisis.

In no sphere of railway activity are ambulance services more completely organised than in the workshops, and it is not putting it too high to say that within a few seconds following an accident to a worker, skilled first-aid men with the necessary equipment are at his side to minimise the effect of the mishap.

The movement is on a voluntary basis, and might even be regarded as a co-operative movement in which the railway companies bear the expense of the training, whilst the employees give the time necessary for acquiring instruction. Quite apart from the obvious advantages accruing from an ambulance training to the staff themselves, the users of the railways, and, in fact, to the community in general, the movement pays dividends in its effect upon the characters of its adherents, and it can truly be said that this beneficial work brings out some of the finest qualities in mankind. Such is the strength of its appeal that many who adopt it with some hesitation become its staunchest supporters.

It was in the great war that women railway workers were enrolled in the movement, and since then the number of women employees taking up the work has justified the introduction of a separate series of first-aid competitions for them. Of considerable value to the community is the fact that large numbers of railway-trained ambulance men enlist in the ranks of the St. John Ambulance Brigade, whose black and white uniform is now so familiar throughout the country. There are, in fact, many divisions of the brigade entirely composed of railway employees. Lay movement though it is, it would be impracticable to carry it on without medical assistance, and this brief review of six decades of railway ambulance work would be both incomplete and ungracious without testifying to the ready assistance afforded by devoted members of the profession, who have given of their best in the capacities of class lecturer and competition judge.—W. G. C.

AUTOMATIC SIGNALLING IN NEW ZEALAND

A 68-mile single-line section of main line has been equipped with approach-lighted searchlight type automatic signals

THE installation of automatic signalling on the 68-mile single-line section of the Stratford—Okahukura (North Island) main trunk line, between Stratford and Whangamomona, is now almost complete and is to be put into operation shortly. Upon its completion trains will be able to run between Stratford and Okahukura without any station staff having to be on duty on the route. The working is such that, upon the entry of a train into a single-line section, all signals in the opposing direction will be kept at danger, making it impossible for two opposing trains to be in the section at the same time. Further, the signals will not show a " clear " indication unless all the relevant points are in their correct positions. The points are manually worked by adjacent levers.

Stations equipped for the crossing of trains have signals at each end, for entering and leaving, with distant signals located approximately half-a-mile from each end of the loop, to warn drivers that they are nearing a station. Those not so equipped are linked in with the system, the points being electrically locked when it is not safe to operate them. The signals are of the searchlight type, approach lighted, with Edison type primary batteries.

The complete layout and the circuits for the system have been designed by the technical officers of the Railways Department, under the supervision of the Signal and Electrical Engineer, Mr. G. W. Wyles, the apparatus being installed and wired by a specially trained staff.

Centralised Traffic Control

The recently-introduced centralised traffic control between Taumarunui and Okahukura on the North Island main trunk line, for a distance slightly under 7 miles, is remarkable in being one of the first of its kind to be installed in the British Dominions. It enables the crossing loop at Taringamotu, approximately 3 miles away, to be worked and controlled from the signal box at Taumarunui, which also operates and controls the departure signal at Okahukura for south-bound trains. An illuminated diagram enables the signalman at Taumarunui to follow the movements of all trains on the section of line between his station and Okahukura. Economies in operation are obtained in addition to the advantages already mentioned. An article describing the development of signalling on the New Zealand railways appeared in THE RAILWAY GAZETTE for January 28, 1938, page 169.

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THE RAILWAY TRAINING CENTRE, R.E., LONGMOOR

Annual training in 1938 *of the Supplementary Reserve Transportation Units, R.E.*

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ALL the Supplementary Reserve Transportation Units, R.E., underwent their annual training at Longmoor Camp, Hampshire, between May and September. The training followed the lines of previous years, each unit spending one week on military and one week on technical training. Special emphasis was laid on the need for efficient A.R.P. arrangements, and every unit prepared its own scheme, which was tested by surprise air raids. During the year the Docks units were re-organised into two groups; No. 1 Docks Group, under the command of Lt.-Colonel J. R. Sadler, R.E. (S.R.), consisting of four Docks Sections was formed from the old group and 157 (L.N.E.) Railway Docks Company, R.E. (S.R.), whilst a start was made on the formation of No. 2 Docks Group and three Docks Sections under the command of Lt.-Colonel J. V. Denning, M.C., R.E. (S.R.). In addition a nucleus of the new No. 1 Movement Control Group, under the command of Major D. S. Gribble, R.E. (S.R.) was given training in September.

The two Operating Companies came to camp together, and after preliminary technical training in military railway rules and regulations, took part in a comprehensive 48-hr. exercise. The Longmoor Military Railway was made to represent a complete line of communication from Docks Exchange Sidings at Bordon through the Base Marshalling Yard at Woolmer and Regulating Station at Longmoor to Railheads on the Liss line and at Griggs Green. Depots were assumed to exist at Louisburg, Hogmoor, and on the Hollywater Line. A Movement Control Staff was formed and in addition to running stores and pack trains to meet the maintenance requirements of the force which, it was assumed, the line of communication was serving, troop moves were arranged and carried out. On the first night of the exercise a very realistic air raid on Longmoor was staged, and the A.R.P. arrangements not only of the company concerned, but also of the Longmoor Garrison, were tested. This part of the exercise was watched by the General Officer Commanding-in-Chief of the Aldershot Command, Lt.-General Sir John G. Dill, K.C.B., C.M.G., D.S.O., and a party of officers from Aldershot and Bordon.

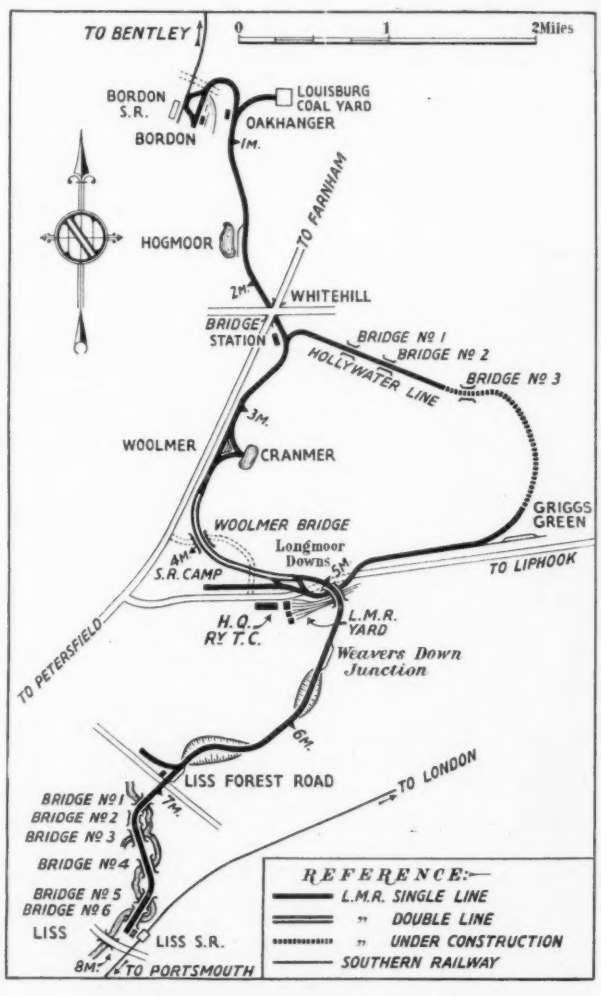
For the training of the Docks Groups a "mock up" ship, the ss. *Applepie*, was built out of tubular scaffolding and tarpaulins at Woolmer and loaded with a miscellaneous collection of stores and packing cases. The whole procedure of unloading from ship, tallying and loading to railway wagons was carried out by both groups. This is the first occasion on which a practical docks scheme has been arranged for the docks units and it was most successful in testing out the organisation and detailed arrangements required for handling military stores in a docks on active service. In addition, a party of officers from each group went to Poole for two days and worked on a theoretical exercise on the lines of the one undertaken last year.

The Workshop Company, now under the command of Major G. S. Bellamy, R.E. (S.R.), was given training in fieldworks and practised the re-railing of a locomotive under active service conditions, whilst a few men were employed in the erection of a temporary locomotive water tank, built out of tarpaulins and sleepers, on top of a tubular scaffolding staging.

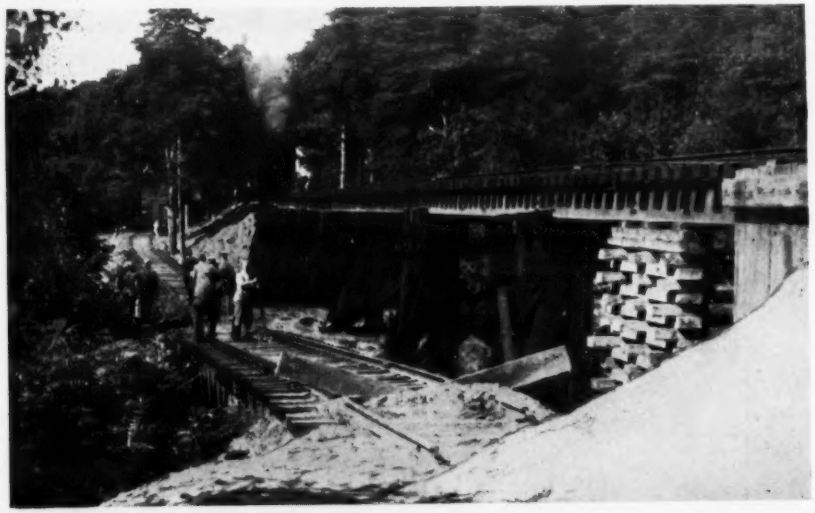
The three Construction Companies continued their previous years' work on the Hollywater branch and completed No. 2 Bridge. They also materially assisted in the completion of the new Woolmer deviation, which was opened for traffic in September. Fieldworks, demolitions, and end-on platelaying were also included in the programme.

A small transportation stores depot was formed at Woolmer and taken over by the Stores Company, which continued its training where it was left off last year. The proposals formulated last year for the organisation and working of the depot were tested out in practice this year and valuable experience was gained. This company provided all the stores for the Construction Company which was in camp at the same time, and also met the many and varied demands placed on it by the instructional staff.

A few officers and men of the new No. 1 Movement Control Group were enlisted in time to receive training in September. Their work consisted in familiarising



Map of the Longmoor Military Railway



151*st* (*G.W.R.*) *Construction Company—*(*left*) *inspection party at Hollywater bridge, and* (*right*) *mixed train passing over Hollywater bridge*

150*th* (*L.N.E.R.*) *Construction Company—Tracklaying on the new Woolmer deviation*

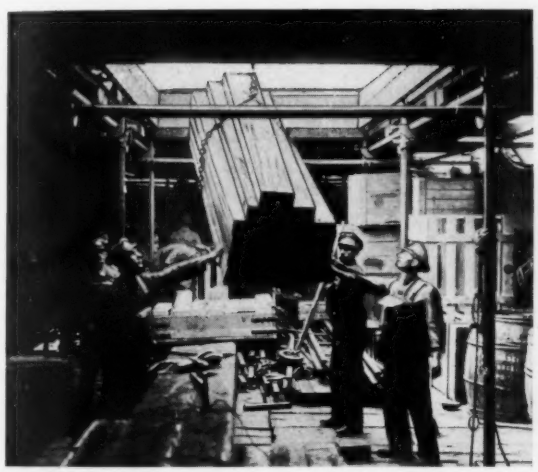
153*rd* (*L.N.E.R*) *and* 154*th* (*G.W.R.*) *Operating Companies—Field guns loaded on flat wagons*

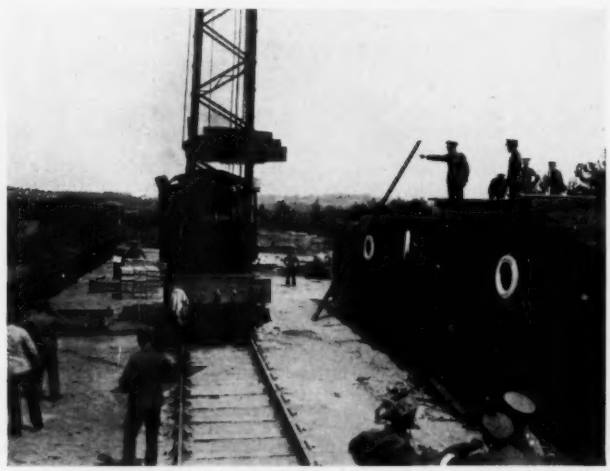
Left: 151*st* *(G.W.R.) Construction Company—Tracklaying at Griggs Green*

Right: No. 1 Movement Control Group—Demonstration of loading military vehicles—lorries, cars, and tanks—on to flat wagons

152*nd* *(G.W.R.) Construction Company—Laying the down main line of the new Woolmer deviation*

H.Q. Stores Group and 156th (S.R.) Stores Company—Work in progress during a gas attack at Woolmer advance stores depot





No. 1 Docks Group—Dockside work: Unloading the ss. "Applepie"

155th (L.M.S.R.) Workshops Company—Rerailing a locomotive

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themselves with the type of military traffic and methods of controlling it which would be required on active service. The training included reconnaissance of a station for use as a railhead, and demonstrations of marshalling pack trains and loading military vehicles.

Inspections and Visitors

Inspections were made during the summer by the Quartermaster General to the Forces; the Director of Movements and Quartering; The Chief Engineer, Aldershot Command; The Assistant Director of Transportation; and the Chief Signal Officers of the Aldershot, Eastern and Western Commands. Among the railway officers who visited Longmoor during the Annual Camp were :—

Colonel the Lord Stamp, G.C.B., G.B.E. (Chairman and President, L.M.S.R.), the Rt.-Hon. Viscount Horne, P.C., G.B.E. (Chairman, G.W.R.), Sir James Milne, C.V.O., C.S.I. (General Manager, G.W.R.), Colonel G. S. Szlumper, C.B.E. (General Manager, Southern Railway), Colonel H. A. Short, M.C. (Assistant Docks and Marine Manager, Southern Railway), Colonel L. Manton, D.S.O., O.B.E. (Principal, Railway Staff College, L.M.S.R.), Mr. W. H. Hamlyn (Assistant (Architectural) Engineer, L.M.S.R.), Lt.-Colonel R. E. L. Maunsell, C.B.E. (late Chief Mechanical Engineer, Southern Railway), Mr. F. R. E. Davis, C.B.E. (Secretary, G.W.R.), Major A. S. Quartermaine, M.C. (Deputy Chief Engineer, G.W.R.), Major C. M. Jenkin-Jones (Divisional General Manager, Southern Area, L.N.E.R.), Mr. C. H. Newton (Divisional General Manager, L.N.E.R.), Mr. H. H. Mauldin (Superintendent, Eastern Section, Southern Area, L.N.E.R.), Mr. A. F. Bound (Signal and Telegraph Engineer, L.M.S.R.), Mr. C. Carslake (Signal and Telegraph Engineer, L.N.E.R.), Major T. Williams (Port of London Authority), Major E. S. Davies (Chief Engineer, Imperial Chemical Industries Limited), Lt.-Colonel P. M. Brooke-Hitching, Major L. F. S. Dawes (Secretary, Southern Railway), Mr. J. A. Kay (Editor, THE RAILWAY GAZETTE), Alderman E. E. Paulson (Mayor of Derby).

Units Attending Camp

Units attending camp were as follows :—

May 19 to June 2—H.Q. Rly. Operating Group, R.E. (S.R.), Commanding Officer, Bt.-Colonel W. E. Blakey, M.M. 153rd (L.N.E.) Rly. Operating Company, R.E. (S.R.), Commanding Officer, Major H. F. Sanderson, R.E. (S.R.). 154th (G.W.) Rly. Operating Company, R.E. (S.R.), Commanding Officer, Major K. L. Yorath, R.E. (S.R.).

Lord Stamp accompanied by the Q.M.G., the Chief Engineer, Aldershot Command, and the A.D.Tn. (Col. Greig), visiting Applepie Camp

June 8 to June 22—No. 1 H.Q. Docks Group, R.E. (S.R.), Commanding Officer, Lt.-Colonel J. R. Sadler, R.E. (S.R.).

June 23 to July 7—150th (L.N.E.) Rly. Construction Company, R.E. (S.R.), Commanding Officer, Major C. P. Parker, M.C., R.E. (S.R.).

July 8 to July 22—152nd (G.W.) Rly. Construction Company, R.E. (S.R.), Commanding Officer, Major E. C. Cookson, R.E. (S.R.).

August 10 to August 24—No. 2 H.Q. Docks Group, R.E. (S.R.), Commanding Officer, Lt.-Colonel J. V. Denning, M.C., R.E. (S.R.). 155th (L.M.S.) Rly. Workshops Company, R.E. (S.R.), Commanding Officer, Major G. S. Bellamy, R.E. (S.R.). No. 2 Company (L. of C.) Signals (S.R.), Commanding Officer, Lt.-Colonel R. Tandy, R.C.S. (S.R.).

August 25 to September 8—151st (G.W.) Rly. Construction Company, R.E. (S.R.), Commanding Officer, Major R. H. Edwards, R.E. (S.R.). H.Q. Transportation Stores Group, R.E. (S.R.), Commanding Officer, Lt.-Colonel A. B. Chester, R.E. (S.R.). 156th (S.) Transportation Stores Company, R.E. (S.R.), Commanding Officer, Major L. J. M. Knotts, R.E. (S.R.).

September 8 to September 22—No. 1 Movement Control Group, R.E. (S.R.), Commanding Officer, Major D. S. Gribble, R.E. (S.R.).

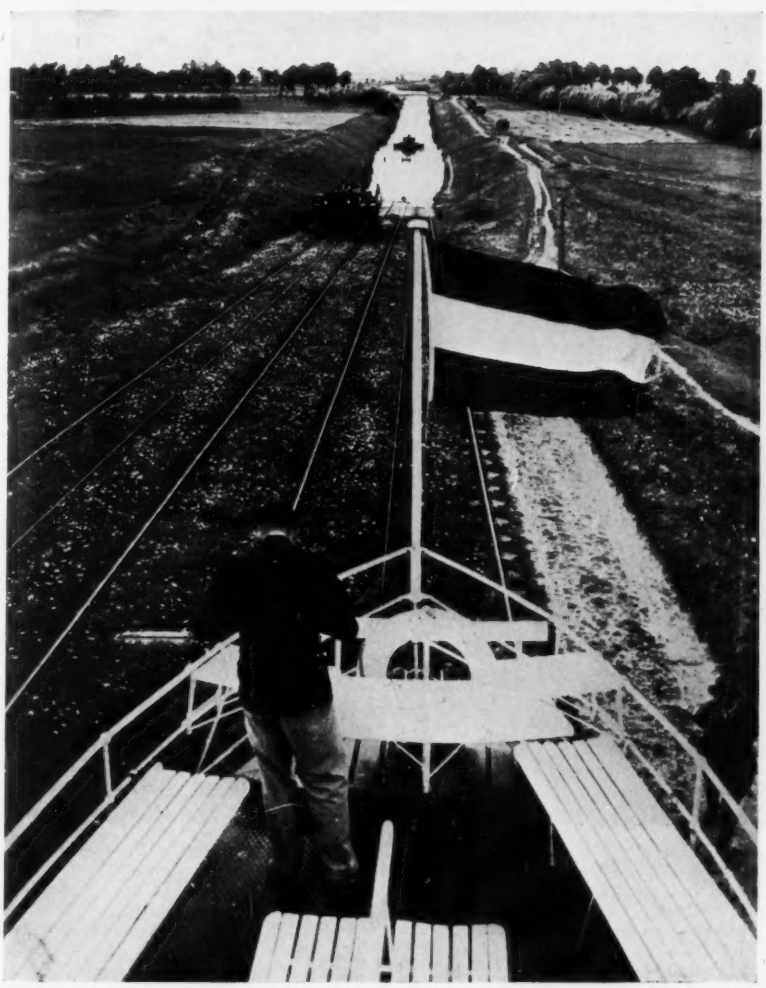
The Power of Persuasion

The following announcement of an early railway excursion appeared in the *Leicester Herald* of June 4, 1842:—

"On June 22, an excursion to that delightful place, Matlock, by special train is announced. It will consist of first and second class carriages; will leave Leicester early in the morning; and traversing the Midland Counties line to Derby and thence the North Midland to the Ambergate station, will discharge its living cargo at the point where the railway crosses the Cromford Canal. Here the party will take water, and a voyage of five miles, through the most picturesque scenery in Derbyshire, will bring them to Matlock. Not the least interesting, if the slowest part of the journey, will be that on the silent highway. The Cromford Canal is, for the whole distance between Ambergate and Matlock without a lock; and it winds at the foot of majestic hills, and through beautiful pleasure grounds, nearly the whole way. The preparations for the accommodation of the party, which is expected to be very numerous, will be conducted in real railway fashion—that is, without any regard to expense on the part of the Directory. Boats with awnings and seats, regimental bands of music, and everything to ensure the comfort and enjoyment of the travellers will be provided. Eight or ten hours will be allowed for inhaling the breezes from the summit of the High Tor, or the heights of Abraham, while those whose aspiration or strength of limb will not take them so high, will find ample time to explore the caverns, or wander along the margin of the Derwent. Every facility will be afforded by the indefatigable Secretary of the Midland Counties Railway—to whom our townspeople are indebted for this capital project—to parties who may wish to travel together, to secure one or more compartments of particular carriages to themselves."

Could the publicity department of a modern railway company better this effort at making an excursion sound attractive?

Rail Links in a Passenger-Carrying Canal



The East Prussian highlands, situated between Elbing, in the north-west, and Liebemühl in the south-west of the German province of East Prussia, are traversed by the Oberland canal, built between 1844 and 1860 by the Prussian Waterways Inspector Steenke of Elbing. This is provided with five railed inclines, in place of locks, for transferring craft from one level to another, and the process may be seen in the accompanying illustrations, reproduced from photographs taken in 1934, and therefore the vessels are flying the former German merchant ensign. The canal begins at the lake of Drausen, and touches other lakes in its course. At Liebemühl it divides, one branch leading to Osterode, and the other to Deutsch Eylau through the lake of Geserich. A connecting canal, the Duz, provides an alternative route for a short distance near Mohrungen. Although constructed originally for goods traffic, the canal also attracts numbers of tourists, as the surrounding scenery is varied and beautiful. A passenger boat service is maintained daily during the summer months between Elbing and Osterode, connecting with the Reichsbahn railway routes

Aerial photograph of Aberdeen showing the railway station, goods yard, and part of the inner harbour. The layout here is a good example of interchange between various means of transport

RAILWAY NEWS SECTION

PERSONAL

Mr. H. E. Hedges, who, as recorded in our issue of December 30, has been appointed an Assistant to the General Manager, Great Western Railway, entered the company's service in May, 1906, in the Office of the Superintendent of the Line, where he gained experience in the Claims, General, Train and Timetable Sections of the office, and at stations. In 1919 he was transferred to the General Manager's office, where he became Private Secretary to the late Mr. Charles Aldington, the General Manager, and to Sir Felix Pole, upon the latter's appointment in a similar capacity. In 1923 Mr. Hedges received a period of training in the Goods Department at Paddington, and in the winter of 1923/4 he accompanied Sir Felix Pole on his tour of inspection of the Sudan Railways. In 1926, the supervision of the Statistical Section of the General Manager's office was added to Mr. Hedges' responsibilities, and in July, 1929, he was given charge of the enlarged General Section, the post he now vacates. Mr. Hedges was Secretary of the South Wales Trade Recovery and Expansion Committee, and has been a member of the Railway Statistics Committee since March, 1930. He is a Brunel Medallist of the London School of Economics.

Elliott [*& Fry*

Mr. H. E. Hedges

Appointed an Assistant to the General Manager, Great Western Railway

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Mr. Gilbert Matthews, who, as recorded in our issue of December 23, has been appointed to the position of Principal Assistant to the Superintendent of the Line, Great Western Railway, Paddington, was educated at Westminster, and entered the company's service in the General Manager's Office in 1908. During 1909-1910 he gained experience in station working in the London Division, and then went to the United States to study traffic operating on the Pennsylvania, and New York Central Railroads. On his return to this country he was attached to the Passenger Train Running Section of the Office of the Superintendent of the Line until his appointment in 1925 as Chief Clerk to the Divisional Superintendent, Plymouth. In January, 1932, Mr. Matthews was appointed Assistant to the Superintendent of the Line, dealing principally with staff matters, and in July, 1934, he became Operating Assistant to the Superintendent of the Line. In October, 1937, Mr. Matthews was appointed Divisional Superintendent at Swansea, from which position he now returns to Paddington.

Mr. Gilbert Matthews

Appointed Principal Assistant to Superintendent of the Line, Great Western Railway

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SOUTHERN RAILWAY APPOINTMENTS

Mr. H. Barnden has been appointed Registrar of the Southern Railway Company, in place of Mr. E. Stone, who has retired from the service.

Mr. Frank Gilbert has been appointed General Assistant to the Public Relations and Advertising Officer, Southern Railway, as from January 1. Mr. H. S. Matthews, Traffic Manager's Office, Waterloo, will succeed him as Chief Clerk to the Continental Superintendent, Victoria.

Mr. Frank Gilbert who, as recorded in the preceding column, has been appointed General Assistant to the Public Relations and Advertising Officer, Southern Railway, entered the service of the former London & South Western Railway in 1910, and had a general outside experience before joining Sir Herbert Walker's staff in January, 1914. He served overseas from September, 1914, to April, 1919, and on return to the railway service he held positions in the Publicity, Continental, and Staff sections of the General Manager's Office. In June, 1928, Mr. Gilbert was appointed Secretary to the Railway Staff Conference, and during the next nine and a half years devoted his energies to various aspects of national staff and labour negotiations. He was Secretary on behalf of the railway companies and of the trade unions of the Railway Staff National Council; also of the Special Joint Committee on Machinery of Negotiation for Railway Staff. He was also Joint Secretary of the National Railway Shopmen's Council, and the Railway Police Central Conference. In October, 1937, Mr. Gilbert returned to the Southern Railway as Chief Clerk in the Office of the Continental Assistant to the Traffic Manager, which post he has continued to hold until his new appointment.

Mr. Frank Gilbert

Appointed General Assistant to Public Relations and Advertising Officer, Southern Railway

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Mr. W. S. Horace Williams, who, as recorded in THE RAILWAY GAZETTE of December 23, has been appointed Divisional Superintendent, Swansea, G.W.R., with effect from January 2,

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Mr. W. S. Horace Williams

Appointed Divisional Superintendent, Swansea, G.W.R.

Mr. S. G. Hearn

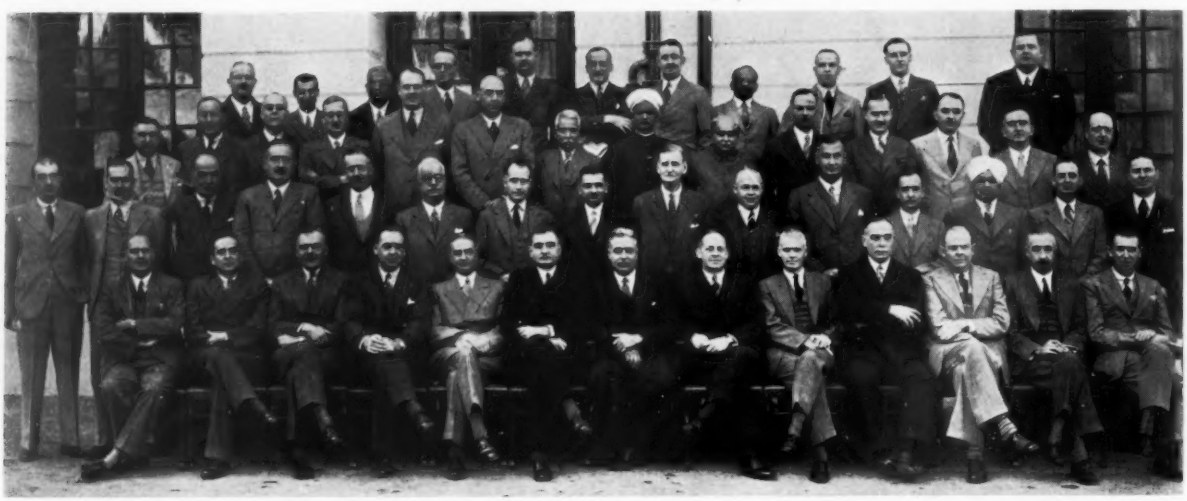
Appointed Divisional Superintendent, Gloucester, G.W.R.

The late Mr. Frank Brown

Assistant General Manager, Port of Bristol Authority, 1929-38

entered the service of the Great Western Railway in the office of the Superintendent of the Line at Paddington, subsequently occupying posts at Llanelly, Swansea, Gobowen, and Hereford; also in the Advertising Department, Paddington. In March, 1917, he became Chief Clerk to the Divisional Superintendent at Pontypool Road, and in June, 1921, was appointed Assistant Divisional Superintendent, Swansea. In April, 1933, Mr. Williams was transferred to Cardiff in a similar position, and in July, 1935, was appointed Divisional Superintendent, Gloucester; it is from there that he is now transferred to take charge of the Swansea Division as Superintendent.

Mr. S. G. Hearn, A.M.Inst.T., whose appointment as Divisional Superintendent, Gloucester, Great Western Railway, was recorded in our issue of December 23, joined the company's



Front Row (seated).—Mr. L. W. van Someren (E.B.R.), Major E. W. Slaughter (N.S.R.), Mr. G. E. Cuffe (A.B.R.), Mr. C. G. W. Cordon (M.S.M.R.), Mr. J. D. Westwood (B. & N.W.R.), Mr. C. A. Muirhead (S.I.R.), Mr. A. F. Harvey (President, I.R.C.A.), Col. C. F. Carson (N.W.R.), Mr. J. A. Bell (E.I.R.), Mr. A. Duncan (B.N.R.), Mr. G. C. Laughton (B.B. & C.I.R.), Mr. J. H. F. Raper (G.I.P.R.), Mr. A. J. Dyer (R. & K.R.).

2nd Row.—Mr. G. St. G. Higginson (B.N.R.), Capt. E. J. Austen (B.B. & C.I.R.), Mr. L. F. Jackson (Jp.S.R.), Mr. J. Fearfield (Bk.S.R.), Lt.-Colonel E. F. Johnston (Martin & Co.), Mr. E. J. Hope (G.L.R.), Mr. G. T. Simpson (Jodhpur R.), Mr. N. R. Green (Morvi R.), Mr. F. H. Bibra (B.S.R.), Mr. J. C. Rose (F.I.R.), Mr. W. T. Aldous (B.B. & C.I.R.), Mr. V. L. Thompson (A.B.R.), Mr. T. K. Soundara Rajan (S.I.R.), Mr. G. E. Berkley (G.I.P.R.), Mr. B. Lawrence (I.R.C.A.).

3rd Row.—Mr. C. F. White (G.I.P.R.), Mr. A. C. Austin (B.N.R.), Mr. W. H. H. Young (E.I.R.), Mr. G. W. N. Rose (J.S.R.), Mr. B. Moody (N.W.R.), Mr. R. de K. Maynard (M.S.M.R.), Mr. S. R. Phansey (Dh.S.R.), Mr. Y. K. Ramachandra Rau (M.S.R.), R. S. Girdharlal D. Mehta (J. & D. R.), Mr. R. S. Vipan (A.B.R.), Mr. H. G. Carpenter (M.S.M.R.), Mr. F. T. Castells (B.N.R.), Mr. R. D. Harrison (B.B. & C.I.R.), Mr. G. D. Laurie (B. & N.W. and R. & K. Rys.).

4th Row.—Mr. A. W. Watts (N.S.R.), Mr. R. H. Nailer (N.S.R), Mr. T. Christian (I.R.C.A.), Mr. H. G. Rawlins (Jodhpur R.), Mr. P. Ramsay Brown (Bk. S.R.), Mr. J. F. C. Reynolds (S.I.R.), Mr. H. J. Allinson (E.B.R.), Mr. P. Govindaraja Pillai (S.I.R.), Mr. H. J. Crane (S.I.R.), Mr. P. Hales-Coleman (B. & N.W.R.), Mr. G. S. Pelly (B.N.R.).

INDIAN RAILWAY CONFERENCE ASSOCIATION—1938

(The autumn session of the conference was reported in our issue of December 23)

service at Totnes as booking and goods clerk. Apart from four years with the Royal Engineers (Signals) during the war in France, Belgium, and Germany, he was employed at various stations in the Plymouth Division until 1921. In that year Mr. Hearn was selected for the company's special training scheme, being the first Traffic Department clerk to be so chosen. He received facilities for obtaining additional experience in the Goods, Traffic, and Docks Departments. His training period over, Mr. Hearn served for three years on the personal staff of the General Manager. In January, 1928, he took up special duties in the Office of the Superintendent of the Line, where he remained until his appointment as Junior Assistant to the Divisional Superintendent at Newport in March, 1930. Mr. Hearn was transferred to the Worcester Division as Chief Clerk to the Divisional Superintendent in July, 1933, and in October, 1936, was appointed Assistant Divisional Superintendent at Newport. Mr. Hearn won the G.W.R. (London) Lecture and Debating Society's Prize Essay Competition, 1928-9, on the subject "How should the railway companies avail themselves of their newly-acquired road powers."

DEATH OF MR. FRANK BROWN

We regret to record the death on December 13 of Mr. Frank Brown, Assistant General Manager of the Port of Bristol Authority. Mr. Brown went to that post from the Great Western Railway, where from 1926-9 he was Assistant to the Chief Docks Manager. His earliest experience was with the former London & North Western Railway, which he served from 1896-1901, being then appointed Personal Clerk to the General Manager of the Alexandra (Newport & South Wales) Docks and Railway. In 1903 he was appointed Parliamentary Clerk to the system, and in 1908 became Parliamentary and Staff Assistant to the General Manager, and Secretary to the Conciliation Boards. Mr. Brown was appointed Chief Assistant to the General Manager in 1916. The Newport Docks & Railway system was absorbed into the Great Western Railway on grouping, and Mr. Brown was appointed Assistant to the Chief Docks Manager, G.W.R., becoming Assistant Chief Docks Manager in 1926. He was selected for the post of Assistant General Manager, Port of Bristol Authority, out of 236 candidates in 1929.

The King of the Belgians has conferred upon Mr. R. H. Hacker, Continental Superintendent of the Southern Railway, the honour of Chevalier de l'Ordre de la Couronne, for services rendered in connection with the development of traffic between England and Belgium. The insignia was presented to Mr. Hacker on December 22, at the Belgian Embassy in London, by M. le Baron E. de Cartier de Marchienne, the Belgian Ambassador.

New Year Honours

Among the honours announced in the New Year were the following of transport and industrial interest:—

Knights Bachelor

Mr. William Chamberlain, M.Inst.T., Chairman of Traffic Commissioners, North Western Area, Ministry of Transport.

Mr. Edward James George, Director and General Manager, Consett Iron Co. Ltd.

Mr. Henry Sheil Elster Vanderpant, Chairman, London and Home Counties Traffic Advisory Committee.

K.C.M.G.

Mr. Thomas St. Quintin Hill, C.M.G., O.B.E., Comptroller-General of the Department of Overseas Trade.

C.I.E.

Mr. Frank D'Souza, Officiating Member, Railway Board (Railway Department), Government of India.

C.V.O.

Mr. Ashton Davies, O.B.E., Acting Vice-President, L.M.S.R.

M.V.O. (Fourth Class)

Mr. John Purves, Principal Assistant to C.M.E. for Carriages and Wagons, L.M.S.R. On the occasion of the centenary of the railway.

G.B.E. (Civil Division)

Sir Frank Edward Smith, K.C.B., C.B.E., F.R.S., Secretary of the Department of Scientific and Industrial Research. Lately Secretary of the Royal Society.

K.B.E. (Civil Division)

Major the Hon. Edward Cecil George Cadogan, C.B., M.P. for Reading 1922-23, and for Finchley 1924-35. For political and public services. A Director of the Great Western Railway Company.

C.B.E. (Civil Division)

Mr. Owen Glynne Roberts, O.B.E., Secretary, London Midland & Scottish Railway Company. On the occasion of the centenary of the railway.

Mr. Edward Johnston. For services to calligraphy. (Mr. Johnston designed the lettering used for London Underground advertising since 1915.)

O.B.E. (Civil Division)

Mr. George Lionel Darbyshire, Chief Officer for Labour and Establishment, L.M.S.R. On the occasion of the centenary of the railway.

M.B.E. (Civil Division)

Mr. Edwin Catley, Assistant Executive Engineer, North Western Railway, India.

Mr. Thomas Henry Hammond, Staff Officer, Board of Trade.

Mr. Arthur George Reginald Higgins, Assistant Superintendent Class 1, Kenya & Uganda Railways & Harbours Administration.

Mr. John Barrowcliff Scattergood, District Goods Manager at Birmingham, L.M.S.R. On the occasion of the centenary of the railway.

Medal of the Order of the British Empire (Civil Division)
(For Meritorious Service)

Mr. Harry James Dean, Dining Car Attendant, L.M.S.R. On the occasion of the centenary of the railway.

Mr. Edward Ernest Horney, Inspector, Euston station, L.M.S.R. On the occasion of the centenary of the railway.

L.M.S.R. APPOINTMENTS

The following appointments have been approved by the directors:—

Mr. A. J. Rice, Assistant (Rates), Chief Commercial Manager's Office, Euston, to be Assistant (Rates Tribunal), Chief Commercial Manager's Office, Euston.

Mr. F. Grundy, Goods Agent, Accrington, to be Goods Agent, Bury.

Mr. J. Bamber, Chief Clerk, Blackburn, to be Goods Agent, Accrington.

Mr. J. G. Robson, Materials Inspector, Chief Mechanical Engineer's and Electrical Engineer's Department, Derby, to be Assistant-in-Charge, Materials Inspection Bureau, Chief Mechanical Engineer's and Electrical Engineer's Department, Crewe.

Mr. J. Bryson, Clerk, Operating Manager's Office, Glasgow, to be Assistant Divisional Controller (Freight Services), Operating Manager's Office, Glasgow.

Mr. F. G. Coles, M.I.E.E., Technical Assistant to the Electrical Engineer, Southern Railway, since 1924, retired on December 31.

We are officially informed that there is no foundation for reports which were published in certain newspapers last week to the effect that Mr. S. J. Hungerford, Chairman and President of the Canadian National Railways, was retiring at the end of December.

We regret to record the death, at his home at Benfleet, Essex, early yesterday morning, of Mr. John Hartley Knight. Mr. Knight, who was in his 73rd year, had been in indifferent health during the last two or three years. He was appointed an assistant editor of THE RAILWAY GAZETTE in March, 1912, and retired from the staff in 1935. During the difficult war period he was responsible for the editorial make-up and production. Mr. Knight spent his whole business career in journalism, at first in South Africa on the *Johannesburg Star*, and subsequently in Fleet Street, on such papers as the *African World* and *South Africa*. He was the author of several dramatic sketches and took a keen interest in the theatre; his notices of amateur theatricals in our pages were always appreciated. He had a natural gift for descriptive writing, and at times introduced happy touches of light humour and verse into his work. His colleagues regret the loss of a friend. The funeral is to take place at Benfleet tomorrow (Saturday) at 1 p.m.

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New Year Messages

GENERAL MANAGERS' JOINT MESSAGE

The general managers of the four main-line railways issued on December 31 a joint New Year message to the 600,000 British railway workers in recognition of their efforts under the exceptionally trying conditions that obtained during the holidays. The message stated: "Throughout the abnormal weather, railway workers of all ranks tackled the vast task of handling the Christmas and holiday traffic in a spirit of cheerfulness and determination that called forth the admiration of traders and travellers. Heavy Christmas workings, although increased by many additional loads because of weather conditions such as had not prevailed for a decade, were successfully accomplished. In offering to officers and men of all grades our sincere thanks for the magnificent work they performed, worthy in every way of the very best traditions of our railwaymen, we should also like to express to the public our appreciation of the consideration shown by them to the railway staffs. Their understanding of the unusual conditions under which the railwaymen and railways worked, greatly helped them to do their job successfully and efficiently. We wish all railwaymen and women a happy New Year."

SIR JAMES MILNE

General Manager, Great Western Railway

To all members of the staff I send greetings and good wishes for the New Year and my thanks for the co-operation and support which they have given to the company in the anxious and difficult year through which we have passed.

SIR JAMES MILNE

Chairman of the Railway General Managers' Conference

The year 1938 was one of exceptional difficulty for the railway companies. In the early months a further improvement in trade was confidently anticipated, but international complications subsequently brought about a complete change in the outlook and railway traffic declined at a rate which is probably unprecedented in the history of the companies. The published traffic receipts of the four main-line companies show a decrease for the past year of over £7 millions, but this does not by any means represent the full extent of their loss, as there has been a large increase in expenditure on wages and materials, which must also be taken into account. The railways are now faced with a serious financial position, and if they are impoverished they cannot be expected to maintain the efficient services which the public demands, or to be able to meet the vital transport needs of the nation in times of war.

The annual revenues of the railways must necessarily reflect fluctuations in trade, but under normal circumstances it should be recognised that they are as much entitled to a reasonable return on the value of their property as any other business or public utility undertaking. They cannot, however, hope to obtain this return if they have to meet unregulated competition and are not given the same freedom as their competitors to quote appropriate rates for all classes of traffic. The proposals which the companies have submitted to the Government are now under consideration by the Transport Advisory Council, but the measure of support which they have already received indicates that the public fully appreciates the justice of the companies' claim.

As the Chancellor of the Exchequer has recently pointed out, there are encouraging signs which justify the hope that the coming year will witness an improvement in the trade of the country, and if success follows the efforts which are being made in the pursuit of international peace and goodwill, the railway companies should be able to look forward to a greater measure of prosperity, but they must be given speedy relief from the burdens which now hamper their commercial activities.

LORD STAMP

Chairman and President of the Executive, L.M.S.R.

I feel impelled in giving my New Year's message to all of you to strike a personal note and urge you to take new confidence in yourselves in the transport cause for which we are all working. Last year was a most anxious time for us—as citizens or as railwaymen—and I would first like to thank you all for your attitude and efforts during the national crisis. Towards the end of last year the railways faced a critical issue with the object of safeguarding the railway systems in the interests of the community as a whole. I refer to our request to the Government for a "square deal"—with the justice of which all of you are now familiar. No cricketer can win tomorrow's match with the runs he made yesterday. In the same way, although we need all the knowledge of past experience and tradition, it is wrong to identify transport solely with transport history: to live in the past. The stimulus of past inspiration is as vital in transport as in any other business. But we must be able to meet modern conditions and provide the service demanded of us *now*, yet we have been trying to do this while fettered with legislation over 100 years old and now we realise it cannot be done. We are merely asking to be free to keep the railways efficient for the national service they have to perform. In the call of last year is a message to all of you to give of your very best in 1939. I know I can rely on you. It is in this spirit that I give you my best wishes.

LORD ASHFIELD

Chairman, London Passenger Transport Board

In the year which has just drawn to a close London Transport celebrated its fifth birthday. The first five years of our corporate life have been exacting and have made heavy demands upon us all. A formidable task was set and much was expected of us. Many separate and diverse undertakings had to be consolidated and their staffs brought together in a single organisation; and the transport facilities of London had to be reviewed upon a comprehensive basis and plans prepared for their extension and improvement to meet the ever growing demands for additional facilities. It has been a period of unceasing and often intense activity. Looking back on it all now, I am confident that we have cause to be proud of what has been accomplished. The railways are being extended and new rolling stock brought into service; stations have been reconstructed and escalators installed; road services have been extended and improved; trolleybuses have been substituted for trams; new buses and coaches are taking the place of the older types; new garages have been built and the older ones improved; repair shops have been redesigned and modernised, and power stations have been re-equipped and their capacity increased. In every direction there has been ample evidence of our will to provide London with a system of passenger transport which by its efficiency will merit the goodwill of the public whom it seeks to serve. The work involved in carrying out this vast programme of extensions and improvements has made exceptional demands upon our organisation. The magnitude and character of that work have required great skill and care not only on the part of those directly engaged in carrying out the changes but also on the part of those responsible for the day-to-day working of the undertaking. It is very gratifying to be able to say that the work has been carried out without any serious interference to our services. All concerned have discharged their respective tasks with credit both to the board and to themselves. During the twelve months ended June 30 last, new records were established. Roundly 3,814,000,000 passengers were carried on our railways, buses, coaches, trams, and trolleybuses. To provide for the transport of this vast number the board employed 3,263 railway cars, 6,386 buses and coaches, 1,668 trams and 1,026 trolleybuses—a total of no less than 12,343 vehicles—these vehicles ran 567,000,000 car-miles

in the year. These are large figures; they indicate the immensity of our undertaking and the importance of the part our efforts play in the life of the metropolis. Notwithstanding the great and sustained efforts which have been put forth during the last five years, we have not, I fear, achieved that measure of success which those efforts so richly deserve, for we have not yet succeeded in placing the affairs of the board upon a sound and satisfactory financial basis. That this should be the position cannot but give us cause for some disquiet. But with the knowledge that I can rely on the continuance of that loyalty and support which you have extended to me throughout my association with you, I face the future and whatever problems it may hold with confidence and with the firm belief that through our united efforts we shall ultimately bring success to the undertaking in which we all take such a considerable pride and upon which so largely depends our welfare and prosperity. I thank each and every one of the 83,000 members of our staff for the willing assistance and loyal co-operation in the past, and I wish them most warmly health and happiness in the New Year.

SIR RONALD W. MATTHEWS

Chairman, L.N.E.R.

I value very much this opportunity of offering to every member of the staff a few words of appreciation and encouragement at the beginning of a new year, and of thanking all those with whom in the past few weeks I have been able to come in contact, directly or indirectly, for their assurance of loyal support and co-operation in the onerous duties which have fallen on my shoulders. The past year has been one of exceptional difficulty for all concerned with railway work, and for us in this company has been saddened by the laying down of his office by my predecessor as Chairman, Mr. William Whitelaw. His innate fairness, his unfailing optimism, his wide experience, and his joy in his work have left for all of us, in whatever capacity we serve the company, a tradition of service which must always inspire us to give of our best. And it is the best that is in every one of us that will be required in the difficult days that lie ahead. No matter how unimportant it may seem that a particular job be well or badly done, remember that it is all part and parcel of a great whole, and that a number of jobs well or badly done means the difference between an efficient and an inefficient railway service. We are faced today with a competition strenuous and well organised. To overcome it (and it is in the interests of every one of us that it should be effectively met) we must be prepared to render service at least as efficient, to make the passenger at least as comfortable, to treat the merchandise at least as carefully, as our competitors are doing. Even though we obtain the measure of elementary justice we are pressing for, to operate as freely as our competitors, that is only part of the story. The rest is in our own hands. We have every reason to be proud of our past record. Let our New Year's resolution be a determination to make the future even better than the past. I am confident that we shall succeed. and it is in that spirit that I wish you and yours most sincerely a happy and prosperous New Year.

MR. GILBERT S. SZLUMPER

General Manager, Southern Railway

At the close of my first complete year as General Manager I should have liked to have been able to express my wishes to every member of the staff personally, but with a family of nearly 70,000 this is impossible. I would like to thank you all for the support you have given me during the year and for your loyal service to the company, which has enabled us to run an efficient transport service, and at the same time carry out such new works and improvements as have been necessary. There have been many important developments during the past year. The most outstanding has been the completion of the Portsmouth No. 2 electrification scheme last July, when electric services were successfully inaugurated to Bognor Regis, Littlehampton, Chichester, and Portsmouth *via* the Mid-Sussex route. Then there has been the preparation for the Reading electrification, which came into force on the first day of the New Year. Another important work was the opening of the line to Tolworth. Those and other works have been carried out successfully with little, if any, interference with normal traffic. At the beginning of the year the Southern Sales League was introduced for the purpose of fostering traffic, and I am glad to say that the keenness with which the staff have entered into the spirit of the league on every side has made it a great success. Although the year has not been so good as 1937, I am sure that without the enthusiasm and energy which the staff have put into obtaining new and increased traffic in connection with the Southern Sales League, our figures would have been much worse than they are. Now I come to the " square deal " campaign. With the closing of the year the railway companies of Great Britain found themselves severely hit by the competition of road transport with regard to freight traffic. While the Southern is not so seriously affected as the other three companies, being primarily a passenger carrying concern, the fortunes of all the companies, are linked together and I ask every member of the staff to back up the efforts of the railway representatives to see that the " square deal " for which they are asking is given to the railway industry by Parliament. You can help personally by getting the public interested in the railway efforts— over a million copies of the booklet " Clear the Lines " have been issued explaining the companies' position. Make yourselves acquainted with the contents of this book and let your neighbour have a copy, for public sympathy is an invaluable asset. In many ways the past year has been a very difficult one, with bad economic conditions at home and with international situations that have adversely affected travel, and whilst thanking you for the way you have enabled the railway to fully meet every requirement, I express the sincere hope that the coming year will bring more settled conditions and a full measure of peace and happiness for each and every one of you—indeed my hearty wish is " A Happy New Year and a ' square deal ' in 1939."

Christmas Cards, Calendars, and Diaries

Our thanks are due to all represented in the following lists for the Christmas cards, calendars, diaries, and other seasonable greetings sent us:—

Calendars and Diaries

Associated Equipment Co. Ltd.; Blackstone & Co. Ltd.; British Oxygen Co. Ltd.; British Timken Limited: Canadian National Railways; Ceylon Government Railway: Crofts (Engineers) Limited; Dacres Rabjohns Limited; J. Halden & Co. Ltd.; Imperial Chemical Industries Ltd.; Japanese Government Railways: London Transport; Maschinenfabrik Augsburg-Nürnberg A.G.; Netherlands Railways; Railway Convalescent Homes; Railway Passengers Assurance Company; the *Railway Review*; Thos. Robinson & Son Ltd.; Ruston-Bucyrus Limited; Mr. Ronald Shephard; H. J. Skelton & Co. Ltd.; South African Railways & Harbours; Taylor Bros. & Co. Ltd.; Mr. J. W. Thornycroft; Watson, Laidlaw & Co. Ltd.; Whitehead Morris Limited.

Christmas Cards and Greetings

Associated Equipment Co. Ltd.; Belgian National Railways; Beckett, Laycock & Watkinson Ltd.; Bombay, Baroda & Central India Railway—the Agent and General Manager; Mr. V. Boyd-Carpenter; Port of Bristol Authority; Mr. H. G. Cabrett; Mr. Victor P. Ceresole; Mr. P. A. Clews; Mr. A. H. Croxton; Cyprus Government Railway—the Superintendent and staff; the *Drapers Record*; Export Advertising Service Limited; German Railways Information Bureau; Mr. Ivor Fraser; Great Western Railway—the General Manager and his office staff; the Superintendent of the Line and his office staff; the Deputy Chief Engineer; the Mineral Traffic Manager and staff, the District Goods Manager, Worcester, and staff; the Publicity Officer and staff; Major R. H. Edwards and officers, 151st (G.W.) Railway Construction Coy., R.E.; Major E. J. Cookson and officers, 152nd (G.W.) Railway Construction Coy., R.E.; Colonel J. P. S. Greig; Mr. H. R. Griffiths; Hazel, Watson & Viney Ltd.; Head, Wrightson & Co. Ltd.; Mr. W. H. E. Humphrey; Mr. Adin Hull; Mr. Edward Hungerford; Imperial Airways Limited; Institute of Transport—the Secretary and staff; Iraqi State Railways—the Director-General and officers; Japanese Ministry of Railways; Mr. E. G. Jackson; Mr. E. Jay; Mr. G. Koffler; the Comte de Kerdrel; Kenya & Uganda Railways and Harbours—the General Manager; Mr. V. J. Kernan; Mr. J. G. Lyne; London Midland & Scottish Railway—Sir William V. Wood, Sir Harold Hartley,

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Mr. E. J. H. Lemon, Mr. Ashton Davies; the Chief Accountant; the Chief Operating Manager and staff; the Chief Commercial Manager and staff; the Chief Mechanical Engineer, the Chief Electrical Engineer, and staff; the Signal and Telegraph Engineer and staff; the Advertising and Publicity Officer and staff; the Divisional Superintendent of Operation and staff, Derby; St. Rollox works; London & North Eastern Railway—the Superintendent, Assistant Superintendent, and staff, Eastern Section, Southern Area; the Passenger Manager and staff, Southern Area; the London District Passenger Manager and personal staff; the Goods Manager, York, and staff; Mr. E. F. Warren and officers of No. 1 Division, L.N.E. Police; the Information Agent and staff; Mr. Kurt Lubinski; the *Meccano Magazine*; Mr. Maynard A. Metcalf; the *Mutual Magazine*; Mr. W. H. Newman; New South Wales Government Railways—the Commissioner and executive officers; North Western Railway (India) Battalion; Mr. John Phillimore; Mr. D. R. Pollock, Mr. Walter Pontin; Port of Preston Authority—the General Superintendent and staff; Queensland Government Railways—the Commissioner and staff; Reuters; Mr. J. Richardson; Mr. W. J. Reynolds; Mr. G. C. Rhodes; Messrs. Sandberg; Major E. W. Slaughter; Mr. J. Harry Smith; South African Railways & Harbours—the General Manager and staff; Southern Railway—the Docks and Marine Manager; Spalding & Hodge; Mr. Mervyn Talbot; Mr. Harold Torre; Mr. Adam Gowans White; Mr. D. E. White; Mr. Tarleton Winchester; Mr. W. H. H. Young.

Forthcoming Events

Jan. 6 (*Fri.*).—Engineering Public Relations Committee, at Inst. of Electrical Engineers, Savoy Place, London, W.C.2, 3 p.m. Christmas Lecture for Young People. "Speed on Land and Sea and in the Air," by Capt. J. Irving.

Omnibus Society, at Inst. of Marine Engineers, The Minories, London, E.C.3, 7 p.m. Annual General Meeting. Address by Mr. Charles E. Lee.

Southern Railway (London) Lecture and Debating Society, at Chapter House, St. Thomas' Street, London Bridge, S.E.1, 5.45 p.m. Debate with G.W.R. (London) Lecture and Debating Society. "That the Amalgamation of the Great Western and Southern Railway Companies is in the interests of the Public." Affirmative: G.W.R. Society. Negative: Southern Railway Society.

Jan. 7 (*Sat.*).—Stephenson Locomotive Society (Midlands-Northern), at 4, Bury Old Road, Manchester, 6.30 p.m. "Step-Children of the Locomotive World," by Mr. J. Kite.

Jan. 9 (*Mon.*).—G.W.R. (Birmingham) Lecture and Debating Society, at Great Western Hotel, Snow Hill Station, 6.30 p.m. Members' Debate.

Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 5.30 p.m. "Passenger Transport by Road in Relation to Railway Services," by Col. A. Redman, C.B.

Permanent Way Institution (London), at Underground Railways Dining Club, Pelham Street, S.W.7, 7 p.m. "Flat Bottom Track," by Mr. N. Swinnerton.

Stephenson Locomotive Society (London), at King's Cross Station, L.N.E.R., 6.30 p.m. "The Highland Railway," by Mr. C. Hamilton Ellis.

Jan. 10 (*Tues.*).—Institute of Metals (North-East Coast), at King's College, Newcastle, 7.30 p.m. "Mechanisation in the Foundry."

Institute of Transport (Birmingham), at Queen's Hotel, 6 p.m. "Transport from an Industrialist's Point of View," by the Rt. Hon. the Earl of Dudley, M.C.

Institute of Transport (Leeds), at Hotel Metropole, 6.30 p.m. "Organising a National Transport System," by Mr. F. Smith.

Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "The Conditions of Engineering Contracts," by Mr. E. Rimmer.

Permanent Way Institution (Brighton), at Mess Room, New England Street, 7 p.m. "Measured Packing," by Mr. E. Tustain.

Permanent Way Institution (Sheffield), at Victoria Station Hotel. "Permanent Way Institution Convention in Germany, 1938," by Mr. W. A. Willox.

Permanent Way Institution (York), at Railway Inst., Queen Street, 6.30 p.m. "Concrete in Railway Construction," by Mr. N. Dryland.

Jan. 11 (*Wed.*).—Diesel Engine Users Association, at Caxton Hall, Caxton Street, London, S.W.1, 5 p.m. Discussion: "Report on Heavy-Oil Engine Working Costs, 1937-38."

Institution of Locomotive Engineers (London), at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 6 p.m. Discussion: "Minimising Risk of Destruction in Railway Collisions."

Jan. 12 (*Thurs.*).—G.W.R. (London) Lecture and Debating Society, in General Meeting Room, Paddington Station, 5.45 p.m. Debate with Bank of England Debating Society.

Institute of Transport (Manchester-Liverpool Graduate), at Exchange Station Hotel, Liverpool, 6.45 p.m. Three Short Papers.

Railway Club, at Royal Scottish Corporation Hall, Fetter Lane, London, E.C.4, 7.30 p.m. "The Taff Vale Railway," by Mr. D. S. Barrie.

Jan. 13 (*Fri.*).—Institute of Transport (Newcastle), at Royal Station Hotel, 8 p.m. "Transport in Ceylon," by Mr. H. Moscrip.

Institute of Transport (Newcastle Graduate), at Royal Station Hotel, 6.15 p.m. "Co-ordination of Freight Transport," by Mr. W. Heaton.

Jan. 14 (*Sat.*).—Permanent Way Institution (Manchester-Liverpool), at Technical Inst., Liverpool, 3 p.m. "Permanent Way Institution Convention in Germany, 1938," by Mr. W. A. Willox.

Jan. 16 (*Mon.*).—Institute of Transport (Scottish), at North British Station Hotel, Edinburgh, 7.15 p.m. "Some Reflections on Agreed Charges," by Mr. A. Smart.

Railway Students' Association, at London School of Economics, Houghton Street, W.C.2, 6 p.m. "The History, Functions, and Powers of Railway Police," by Mr. G. Stephens.

Jan. 17 (*Tues.*).—Institute of Metals (Birmingham), at James Watt Inst., Great Charles Street, 7 p.m. "Practice in Mechanical Testing," by Mr. V. Green.

Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 6 p.m. "The Railways and the Trader," by Mr. A. Hastie.

Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. Joint Meeting with Société des Ingénieurs Civils de France (British). "The Strengthening of the Austerlitz Bridge (Paris) by Electric Arc Welding," by M. Fauconnier.

Institution of Heating and Ventilating Engineers (London), at Junior Inst. of Engineers, 39, Victoria Street, S.W.1, 6.45 p.m. "Some Notes on Engineering Works in Switzerland," by Mr. J. Bryant.

The G.W.R. during 1938

There were high spots as well as low on the G.W.R. during 1938. Of 54 new factories established on the system, 25 were in South Wales. Some 22,016 wagon loads of Cornish broccoli were carried—2,500 more than last season.

Among the new rolling stock introduced were: 122 locomotives, including ten "Castle" class engines; 274 passenger vehicles, including new type buffet cars and coaches for the Vale of Rheidol railway; and 2,770 freight wagons, including refrigerator trucks for Cornish and Irish rabbit traffic, tank trucks for liquids in bulk, such as glucose, sugar, and vinegar, and shock absorbing wagons for merchandise.

G.W.R. engines ran 98,616,539 miles and the average mileage between general repairs rose 8,000 to 159,000 miles. The 18 railcars ran 976,000 miles, or 97,000 more than in 1937. *A la carte* breakfasts were introduced on the restaurant cars and have proved increasingly popular. Some 55,000,000 tickets were printed, checked, and issued during the year.

On the road side, the company is experimenting with a tractor fitted with a producer-gas apparatus using anthracite, also with a petrol-driven general delivery vehicle with a twin-cylinder air-cooled engine beneath the body. During the year 58,000 G.W.R. passengers made the return journey by road under the interavailability of tickets arrangements and 62,000 road passengers returned by rail.

The tonnage dealt with at the company's docks fell by 2,251,292. Of this, 701,568 tons were in respect of iron and steel, and 1,413,799 coal. Nearly 50 per cent. of the coal decrease was due to the falling off in exports to France, but increases of 116,000 tons to Italy, 160,000 tons to Egypt, and 147,000 tons of anthracite to Canada and North America were recorded. Patent fuel shipments also decreased by 187,521 tons, mainly to France, and the import of pit props fell by 100,072 tons. The inauguration of a monthly direct service of steamers from New Zealand to Cardiff resulted in increased imports of frozen meat, butter, cheese, and canned goods. From all sources, imports of foodstuff increased by 6,500 tons to 11,000 tons.

Trubsee Aerial Cableway Rebuilt

The Trubsee aerial cableway, above Engleberg, was re-opened on December 17 last, after reconstruction, with considerably increased capacity. The line was originally opened on December 17, 1927, and in 1931 was equipped with new lightweight cars, each accommodating 7 more passengers. Ever-increasing winter-sports traffic to the Titlis district made further improvements necessary, and practically the whole installation has now been rebuilt. Two additional supporting pylons have been provided, and the existing four strengthened. A new Oerlikon motor at the upper station develops a maximum of 370 h.p., and the old 127 h.p. motor remains in reserve. The passenger cars, built by the Schieren Carriage Works, are mainly of Anticorodal, and are of 2,700 kg. capacity. The normal speed is 4 m. per sec. and the maximum 6 m. per sec. Special attention has been paid to the automatic speed regulating devices, brake equipment, and telephone connection between the cars and stations. The following figures show how the line has been adapted to increasing traffic:—

	Car capacity, passengers	Passengers an hour (each way)
1927 to 1931 ...	17	92
1931 to Dec., 1938	27	123
From Dec., 1938	33	231

MINISTRY OF TRANSPORT ACCIDENT REPORT

York, L.N.E.R., July 12, 1938

As the 2-6-0 "K3" class locomotive No. 2767 was being backed tender first on to the coaches of the 7.40 a.m. excursion, Newcastle to Scarborough, at about 12.52 p.m., it struck them at about 5 to 6 m.p.h., and 18 persons suffered minor injuries or shock. Damage was negligible. The locomotive had steam brake on the coupled and tender wheels, applied independently or through a combination valve by means of the vacuum brake ejector. The latter method was then in use and a failure of the steam brake valve to respond caused the collision. The driver having reversed and opened the regulator the engine moved forward again several yards after the accident. Major G. R. S. Wilson conducted the inquiry.

The locomotive had left March, where it was on temporary loan from Carlisle, on July 6 and later worked a fruit special from Woodford and Hinton to York, arriving on the day of the accident. Driver H. Naylor, who worked the train from Mexborough, had no trouble with the brakes. The steam brake worked properly by direct application after the engine was uncoupled.

The control over the steam brake is given by a double valve, detailed drawings of which appear in the report, the principle of which is to balance the pressure exerted on the upper (steam) valve piston by vacuum acting on the lower one, but, with the vacuum shut off, the steam valve can be actuated directly by a special handle. A trigger device is provided to hold the steam valve closed in those circumstances and is brought into engagement, through a pin and notch in a linkage device, by forcing the handle forward, when it remains held until it is made use of to apply the steam brake. This linkage device is connected to the vacuum piston in such a way as to ensure that the locking on the steam valve is freed when a vacuum is created. In the latter condition it should be impossible to make the trigger hold by pushing the steam brake handle forward. A fulcrum adjustment, at the top of a steel bar forming the connection between the two pistons, has to be altered to accommodate wear on the steam piston but if it is carried too far it may cause the trigger to jam. The trigger notch must also be of the correct shape. It was found that on locomotive No. 2767, a torpedo pin in the valve mechanism, in combination with some wear elsewhere, allowed the trigger notch to engage with the locking pin when it should have rested on it. Many engines have an earlier type of valve in which these pins are not used. The notch on this engine was also found to be slightly hook-shaped.

Driver H. Laycock and Fireman C. E. Arter were on the engine. The former said the steam brake acted correctly when vacuum was destroyed and recreated at the shed; he stopped three times on the way to the train by using the vacuum ejector handle, and checked the train twice at signals. He obtained no effect, however, nearing the train, even after destroying the vacuum, and tried to apply the steam brake by exercising all his force and weight on the handle. It appeared to jam, moving only a little way. He reversed and applied steam, seeing they were not going to stop, and was not taken aback by the unexpected failure. When the engine moved forward again it was stopped by closing the regulator and opening the cylinder cocks. He could not account for the failure, neither did he notice the position of the valve trigger nor make any test immediately after the accident. He denied having forced the handle into engagement. Fireman Arter generally confirmed Laycock's evidence. He applied the tender brake when the latter reversed. An inspector on the platform thought Laycock was reversing as the collision occurred.

Laycock subsequently said he was prepared to proceed to Scarborough, and declared that the failure persisted on the journey. The train was met there by an inspector, foreman, and fitter. Inspector Mackereth noted that the trigger was holding with 21 inches of vacuum and that, with it free, the steam brake was not applied until vacuum was reduced by 6 inches. The trigger notch was like a "claw." His account of a statement made by Laycock on arrival at Scarborough was contradicted by Laycock. Mr. A. Atkinson, Shed Foreman, examined the valve, certain parts being dismantled by Fitter Ibbotson, and after replacement of a pin and some adjustment it worked properly and did so under Laycock's charge, on the journey back to York, where Mr. E. D. Trask, District Locomotive Superintendent, later examined the valve and concluded that a tight fulcrum adjustment had probably jammed it, a not altogether unusual condition.

The valve was reported in good order at March on July 6, but the examination would have been superficial, as regards the trigger, unless a defect had been booked. Mr. Clear, Locomotive Depot Superintendent, thought the fulcrum must have been adjusted too tightly, but there was no record of any adjustment being made in the Southern Area. It might, although prohibited, have been done in traffic. Only one spanner was necessary to do it.

Major Wilson made tests which convinced him that it was quite easy in this way to prevent the vacuum piston freeing the pin, but even then there was no real difficulty in doing it by pulling the lever by hand. He found the equipment on two other engines, chosen at random, to be in order. There has been no steam brake failure from a jammed trigger in the Northern Area, but one in the Southern Area in 1932 led to the issue of the following notice to enginemen:—

> A case recently occurred with an engine fitted with the ordinary type of automatic steam brake valve where the driver used the vacuum ejector application handle to apply the brake when setting back on to a train, but failed to notice that the trigger of the steam brake valve was not free. The result was that the brake failed to act and the engine collided sharply with the coaches.
>
> Enginemen are instructed that when running light engine, they must manipulate the brake by means of the steam brake application handle and not by the vacuum ejector handle, with the object, not only of avoiding accidents similar to the above, but also for the purpose of economy in coal consumption.
>
> When testing the brake on engines fitted with the ordinary steam brake valve, enginemen should see that the trigger is automatically released when a vacuum is created, and if it fails to do so when a vacuum of more than 10 in. has been created the brake should be booked for attention.

Inspecting Officer's Conclusions

The steam valve was no doubt improperly held closed by the trigger, but there is the possibility that either the vacuum piston or steam valve jammed independently of the trigger. It is, however, unlikely that anything like this occurred. It is thought that not much reliance can be placed on some of Laycock's statements. It is difficult to accept that he was not disconcerted at the last moment, for otherwise he should have had time to avoid the collision by prompt reversal and hand braking. His statement regarding correct action after leaving the shed is accepted. The trigger may have been forced into engagement by Laycock subconsciously, or even Arter, or uncertain action may have resulted from its half-latched position. The accident was due to failure of equipment, but Laycock must bear a minor degree of responsibility, as he had opportunity to retrieve the failure, which occurred 140 yd. from the train. He is 59, with an excellent record. No responsibility rests on Arter.

Remarks and Recommendations

The ease with which the fulcrum adjustment can be disturbed involves a risk, recognised in the instruction above cited, the first part of which appears to indicate a certain lack of confidence in the correct functioning of important safety equipment, and in any case cannot be applied if an engine is working a vacuum-fitted train, when a failure of the engine steam brake to respond to a reduction of vacuum might, especially with a light train, unexpectedly increase the stopping distance to a dangerous extent. Also an objection to direct control of the steam brake when an engine is backing on to its train is that the driver may not be so well placed to obtain a good view ahead when running tender first.

The universal and strict application of the second part of the instruction, to supplement the periodical examination of engine brake equipment would

be a more satisfactory method of dealing with this trouble. It is essential that drivers should make sure, when taking over an engine fitted with this type of valve, that it is impossible for the trigger to remain on the pin when the vacuum is created and that it is lifted well clear by the inward movement of the vacuum piston; to release and apply the steam brake by means of the vacuum ejector *after* it has been directly applied by hand, as appears to have been done in this case, is only a partial test. Definite and clear instructions on these lines should be issued to enginemen and others concerned. With the difficulty in preventing interference with the fulcrum adjustment in traffic, on account of a natural desire to prevent the continual loss of steam from a blowing valve, it may be desirable again to remind the men that such interference is unauthorised, and may possibly have dangerous consequences.

More rigid adherence to dimensional standards in the manufacture and repair of component parts of these valves is necessary. It is obviously desirable that properly made spare "torpedo" pins of standard design should be fitted, if for any reason a replacement is required between general repairs. Such pins were introduced in the interests of freer working, but if roughly made, without strict regard to dimensions, their object is defeated; they become nothing more than a troublesome complication.

One pin in this case was without the collar called for in the design. Though this did not seem to have any bearing on the failure, the collar is an important feature which should be maintained in service. Suitable action is being taken to deal with these details.

Regulating Unbalanced Engine Workings, L.M.S.R.

New colour card-index system adopted for regulating the working of unbalanced engines on the Western Division, and being extended to the Midland Division

An aspect of railway operation which calls for careful organisation in order to secure maximum efficiency and economy is the arranging of workings for locomotives which have finished their work at points away from their home depot, and have no booked return working. Obviously economy is effected if these engines can be returned home on remunerative work, especially so if another engine being turned out specially is avoided. On the L.M.S.R., an organisation exists in each divisional operating office to regulate the working of these unbalanced engines to the best advantage, and so to make maximum use of the available power and avoid unremunerative mileage. This problem is particularly acute on the Western Division (which has a total allocation of 2,669 engines) owing to its heavy special passenger train-mileage and to fluctuations in heavy traffic from the ports (*e.g.*, Garston, Fleetwood, and Barrow). At the Crewe Divisional Office, a revised system of colour-card indexing has been adopted which represents a considerable improvement upon any previous sysrem, and which greatly facilitates the work.

Every unbalanced engine is reported to the appropriate divisional control office. On the Western Division the engine number is now recorded on a card coloured in accordance with the motive power area to which the locomotive belongs. The cards are placed in vertical racks divided into sections for every motive power area, each section having a coloured indication to correspond with the colour of the cards used for engines belonging to that area. The coloured cards are placed in the rack under the depots to which the engines have worked, and it is thus possible to see by the colour relationships where unbalanced engines are on hand, and the motive power areas to which they require to be worked. For example, an engine may be observed entered on a green (Rugby) card inserted in the rack in the area indicated pink (Carnforth); this indicates at once that the engine recorded on this green card is at Carnforth and is required to be worked in a southerly direction in order to secure its return to Rugby, its home depot. The movements of the unbalanced engine are recorded on these coloured cards, as disposal instructions are issued, and the authorised workings take place.

To facilitate the work, metal dockets with movable indicators have been provided, in which the coloured cards are placed for insertion in the rack. Four colour indications can be shown on every docket by means of a movable square disc on the left hand top corner of the metal docket, which show at once the action taken, or requiring to be taken, by the staff concerned:—

White—Waiting divisional office instructions.
Red—Divisional office instructions issued.
Blue—Working trains in accordance with divisional office instructions.
Green—Under repairs.

The fact that the staff responsible for the regulation of unbalanced engines can see the position at a glance, without having to examine each card to ascertain to which depot the engine is allocated, has enabled the work of issuing instructions for the disposal of unbalanced engines to be performed more expeditiously, and with advantage to the motive power position as a whole on the Western Division. Circumstances relating to unbalanced engine workings differ on every division of the L.M.S.R., and the problem is not of such complexity on all divisions as to necessitate the adoption of the visual colour system devised to meet the circumstances on the Western Division, but the extension of the system to the Midland Division is in hand.

Southern Railway Electrification to Reading

Informal opening ceremony prior to public service on January 1

On December 30 a pleasantly informal ceremony took place at Reading to mark the opening to regular passenger service on January 1 of the Southern Railway electrification to that town, and from Ascot to Aldershot and Guildford. A party of Southern Railway officers journeyed by special electric train to Ascot, where representatives of the Camberley and Aldershot urban district areas joined the train, and thence to Reading, where they were received by the Mayor of that town.

Mr. E. Gore-Browne, Deputy Chairman, and Mr. E. J. Missenden, Traffic Manager, who was representing the General Manager, gave short accounts of the Southern Railway work in extending electrification. Speaking on behalf of Mr. Szlumper, who sent to the assembled company his warmest greetings, Mr. Missenden gave some particulars of the new Reading service (described in this week's issue of our *Electric Railway Traction Supplement*), and commented on the necessity of electric traction for London suburban work. The Southern Railway London termini received every weekday 2,345 trains carrying over 370,000 passengers. During the three hours from 7.0 a.m. to 10.0 a.m., 540 trains carrying 243,000 passengers arrived, and actually a third of the total incoming daily passengers arrived within the space of one hour. If the traffic could be spread over evenly, there would be nearly 150 spare seats per train. Colour-light signalling had been installed over 286 miles of the busiest track.

Among other Southern Railway officers present were Messrs. G. Ellson, O. V. Bulleid, H. E. O. Wheeler, R. M. T. Richards, S. W. Smart, J. E. Sharpe, L. F. S. Dawes, C. Grasemann, C. Gribble, W. J. Shorter, E. F. E. Livesey, and G. R. Walter. Visitors included Mr. G. H. Griffith of the Pullman Car Co. Ltd., Messrs. F. R. Potter, J. M. Dewar, and G. E. Orton, of the Great Western Railway, and Lieut.-Colonel P. M. Brooke-Hitching.

NOTES AND NEWS

Budapest-Berlin-Warsaw Through Services.—The international railway services from Budapest to Berlin and Warsaw, which cross Czechoslovak territory, and which were interrupted last September, are to be resumed on January 8.

Rebuilt St. Paul's Underground Station.—On January 1 the rebuilt St. Paul's underground station, London Transport, was opened to traffic. Two banks of escalators replace the lifts formerly in use, and entrances have been provided to the ticket hall from both sides of Cheapside and from Payner Alley.

Six-Wheel Bogies on G.W.R.—Five new 12-wheel buffet cars were built at Swindon by the Great Western Railway in 1938, and five of the dining cars running in the London-Birmingham express services had their 4-wheel bogies exchanged for 6-wheel bogies. A further eleven cars are to be similarly equipped with a view to affording better riding.

L.M.S.R. Special Trains for Football Supporters.—Forty special trains, which it is estimated will convey about 20,000 supporters, are being run by the L.M.S.R. in various parts of the country, in connection with the F.A. Cup Third Round tomorrow. In many cases cheap day or half-day bookings are also being provided by ordinary services.

Canadian Pacific Earnings.—Gross earnings of the Canadian Pacific Railway for the month of November, 1938, amounted to $13,030,000, an increase of $38,000 in comparison with November, 1937. Working expenses were $9,001,000, or $528,000 lower, leaving net earnings $566,000 higher, at $4,029,000. Aggregate gross earnings for the first eleven months of 1938 were $130,311,000, a decrease of $2,512,000, and the net earnings of $17,406,000 for the same period showed a fall of $3,411,000.

Canadian National Earnings.—The November, 1938, gross earnings of the Canadian National Railways were $16,785,084, an increase of $11,557 compared with November, 1937. Operating expenses amounted to $13,943,820, with a decrease of $910,480, resulting in net earnings of $2,841,264, which were higher by $922,037. Aggregate gross earnings for the first eleven months of 1938 amounted to $167,057,671, a decrease of $15,119,512, and the net earnings were $5,036,871, as compared with $15,878,665 for the first eleven months of 1937.

Trans-Canada Air Lines in 1938.—During the past year Trans-Canada Air Lines, a unit in the Canadian National organisation, has established daily express freight services on the Montreal-Vancouver, and Lethbridge-Edmonton routes, and for all classes of traffic between Vancouver and Seattle. Passengers will be flown throughout between Montreal and Vancouver early this year. Up to December, 1938, Trans-Canada Air Lines aircraft had flown nearly 2,000,000 miles.

Collision on the B.A.P.R.—A collision occurred on January 1, at the Retiro terminus, Buenos Aires, of the Buenos Ayres & Pacific Railway. Two persons are reported to have been killed, and eight seriously injured.

Great Southern of Spain Railway.—The registered address of the Great Southern of Spain Railway Co. Ltd. is now River Plate House, 13, South Place, London, E.C.2. The new telephone number is Metropolitan 4277 and the telegraphic address remains "Overglide, London."

Jerusalem-Lydda Railway Reopened for Goods Traffic.—A Reuters message from Jerusalem states that a restricted goods train service was resumed on December 31 over the line from Jerusalem to Lydda for the first time since September 8, when all traffic was suspended owing to extensive sabotage. Repairs were begun early last month.

L.M.S.R. Excursion Programme.—During the four months ending April, 1939, the L.M.S.R. proposes to run no fewer than 2,286 half-day and evening excursions from all parts of England and Wales, estimated to convey over a million passengers. Of these, 1,036 will be evening trips at specially reduced fares, and the remainder will be half-day excursions.

Schoolboys' Own Exhibition.—The Schoolboys' Own Exhibition was opened on Saturday last at the Royal Horticultural Hall, Vincent Square, S.W.1, and will remain open until January 14. At first sight the scene suggests a recruiting campaign rather than an exhibition, as half the floor space is occupied by stands showing the activities of the Royal Navy, the Royal Air Force, and the Territorial Army. Men from these three branches of the Service are in attendance to explain the working of the various exhibits. One of the most interesting displays is a 17-ft. working model of a typical stretch of the Grand Union Canal.

Lincoln Welding Papers to be Published.—It is announced that 109 of the more important papers submitted in the James F. Lincoln Arc Welding Foundation award programme for 1938, are shortly to be published in book form. The book will be divided into ten sections, all embodying the results of practical experience with arc welding in various industrial fields. In the railway section, eleven papers will be reproduced, dealing with arc welding in the design and construction of locomotives, boilers, rolling stock, tenders, and locomotive parts. A section of eleven papers on welded containers will also be of railway interest. Diagrams and photographic illustrations will be used throughout to amplify the text. The book will be ready at the beginning of February, price $2 post free (or $1.50 in the U.S.A.), and is being published by the James F. Lincoln Arc Welding Foundation, Cleveland, Ohio.

Death Roll in Roumanian Collision.—It is reported that 20 more passengers have died as a result of the collision on December 24, between Frecatenzi and Etulea, Roumanian State Railways (reported last week). The death-roll, therefore, now amounts to 123.

Northern Belle Train Cruises in 1939.—The L.N.E.R. Northern Belle cruise train will make two tours of Scotland this year—on June 9 and June 23. An illustrated folder, giving details of the itinerary and other information, is now available at all L.N.E.R. London and suburban stations, enquiry offices, and agencies. The inclusive charge for each tour, embracing first class rail accommodation by day and night, road motor tours, admission charges to places of interest, and all meals on the train or at hotels as scheduled, will be £20 from London back to London.

L.M.S.R. Coronation Scot for the U.S.A.—The L.M.S.R. Coronation Scot train, which is to make a tour in the U.S.A. previous to being placed on exhibition at the New York World's Fair, is due at Southampton for loading on January 19. A farewell ceremony to the crew of the train will take place at Euston on Monday next, when Lord Stamp will preside at a luncheon attended also by representatives of the men who built the locomotive and coaches. The train set being sent to the U.S.A. is one of three that would normally have been required in 1940, but its completion was expedited so that an example of the very latest British coach-building methods might be available. The locomotive accompanying the train to the U.S.A. will be No. 6220, *Coronation*.

Belfast Corporation and the M'Lintock Report.—The Belfast Corporation has given an emphatic "No" to the proposal in the report of the committee presided over by Sir William M'Lintock, that Northern Ireland road and rail transport should be amalgamated, with the tramway and bus services of the Belfast Corporation included. Councillor R. J. R. Harcourt, Chairman of the Transport Committee, speaking at a meeting of the Belfast Corporation, said that the recommendation of the M'Lintock Report meant that the municipal undertaking should be amalgamated with a number of undertakings which were all losing money or making only trifling profits. The Belfast Transport Committee was just as anxious as anyone in Northern Ireland to see transport put on a sound basis, and was prepared to assist the Government in any way in its power with a scheme of co-operation or co-ordination of services, provided that in such measure of co-operation the citizens of Belfast were fully safeguarded and

that the scheme did not in any way affect adversely their present financial position.

Buenos Aires Central Railroad & Terminal Co. Ltd.—A meeting of preferred shareholders of Buenos Aires Central Railroad & Terminal Company (Lacroze Subway) will be held in Buenos Aires on February 15, to authorise the directors to sell or otherwise dispose of the shares or properties of the subsidiaries, Buenos Ayres Central Railway, Buenos Ayres Lacroze Tramways, and Buenos Aires Lacroze Light & Power.

Institution of Railway Signal Engineers.—At a meeting in London, on December 21, Mr. E. W. Challis read a paper entitled "A Comparison Between Relay and Electric Lever Interlocking," illustrating it with lantern slides. In the discussion, the following spoke: Messrs. W. Challis, W. Wood, C. Carslake (by communication), E. G. Brentnall, F. L. Castle, H. H. Dyer, C. H. Bennett, and L. J. M. Knotts, and the President, Mr. G. H. Crook.

Mexican Southern Railway Co. Ltd.—The report for the year ended December 31, 1937, states that the schemes of arrangement of 1927 and 1931 provide that the net earnings of the Interoceanic System of Railways (including the Mexican Southern Company's lines) shall be pooled and the obligations of the group placed on a defined income-sharing basis for a prescribed period from January 1, 1927. The operating of the Interoceanic System for the year 1937 having resulted in a loss, no amount is receivable by the Mexican Southern Company on account of debenture interest under the schemes of arrangement.

Baltimore & Ohio Railroad.—Out of the total of $543,000,000 of obligations included in the Baltimore & Ohio Railroad Company's plan for modification of interest charges and maturities, holders of over $300,000,000 (including $72,771,000 of notes of the Reconstruction Finance Corporation and $13,490,000 of secured notes held by the Reconstruction Finance Corporation), or over 55 per cent. had formally assented before the end of December, 1938, to the plan. These assents represent more than 30,000 individual holders from all parts of the United States. Interest maturing on and after January 1, 1939, will be paid in accordance with the provisions of the plan.

New Vessels for Harwich-Flushing Service.—The first of two new vessels for the Harwich-Flushing service, which runs in connection with the L.N.E.R. boat train from Liverpool Street station, is to be launched at de Schelde shipbuilding Yard at Flushing, on Saturday, January 14, by Her Majesty the Queen of the Netherlands. The second vessel will be launched in February and the new ships are expected to be in daily service between Harwich and Flushing in June and July respectively. The new ships will have a speed of 23 knots. They will be propelled by two-stroke cycle Sulzer diesel engines of 12,650 h.p., and will have a carrying capacity of 1,800 passengers. Each vessel will have 60,000 cu. ft. of cargo space, and accommodation for 24 motorcars between decks.

Cordoba Central Railway Purchase.—By 16 votes to 1, the Argentine Senate sanctioned, on December 29, the purchase by the State of the British-owned Cordoba Central Railway, states a Reuters message. The Chamber of Deputies has already approved the State purchase of the railway and of the Argentine Transandine Railway. The Cordoba Central Railway was taken over by the State Railways on February 1 last, under a provisional working agreement.

P.L.A. Improvements at Millwall.—The Port of London Authority has decided, with the object of providing improved facilities for Swedish trade, to reconstruct the north quay of the Millwall Outer Dock, and to erect two 2-storey quay sheds 432 ft. long and 100 ft. wide. The work will involve deepening the dock to 29 ft. and the remodelling of the existing road and railway lines, and incidental work. The cost of the scheme is estimated to be in the neighbourhood of £200,000.

£14,000 Scheme at Laindon Passenger Station.—Extensive improvements to Laindon passenger station, situated between Pitsea and Upminster, on the Southend and Tilbury line, are announced by the L.M.S.R. The work is to be carried out under the Government Loan Guarantee Scheme of the Railways (Agreement) Act, 1935, at a cost of £14,620 to meet the needs of the growing traffic consequent upon the rapid development of this neighbourhood. The plans include the provision at road level of a new booking and parcels office complete with enquiry counter; new concourse approach with awning over pavement; three shops and two kiosks; bookstall and luggage lift. It is also intended to rearrange and modernise the waiting-room accommodation on the down platform, and the lighting of the entire station is to be overhauled.

Trade Union Officials at Inquests.—At the inquest, on January 2, on the body of a platelayer who died as the result of an accident during shunting operations at the L.M.S.R. station, Oxford, on December 12, the Oxford Coroner asked Mr. J. V. Sweeney, Organising Secretary, Associated Society of Locomotive Engineers and Fireman, whether he had any statutory right to act as advocate and ask questions at inquests. Mr. Sweeney said he had acted in that capacity for 21 years at courts in all parts of England and Wales. He understood the Home Secretary had given instructions that trade union officials be allowed to attend inquests and give assistance on technical points. The Coroner said that this did not give the right to act as an advocate, and he could not allow Mr. Sweeney to ask any questions. Mr. Sweeney said he would accept the ruling and report to headquarters.

British and Irish Railway Stocks and Shares

Stocks	Highest 1938	Lowest 1938	Prices Jan. 4, 1939	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	65¼	25¾	28	—
5% Con. Prefce....	118¾	74	82½	+1
5% Red.Pref.(1950)	111¾	90	92½	—
4% Deb.	111	97½	101½*	+1
4½% Deb.... ...	112 5/16	100½	104½*	+3
4½% Deb.... ...	118½	104	108½*	+2
5% Deb.	131½	119	120½*	+1
2½% Deb.... ...	69¾	60	64½*	—
5% Rt. Charge ...	129	114	116½*	+1
5% Cons. Guar. ...	128½	103	109½	+2
L.M.S.R.				
Ord.	30½	11	13½	+½
4% Prefce. (1923)	70¼	23	30	+1½
4% Prefce. ...	82¼	43¾	50½	+2
5% Red.Pref.(1955)	103½	66	71½	+2
4% Deb.	105 15/16	85	97½	+2
5% Red.Deb.(1952)	114¼	105	108	—
4% Guar. ...	102¾	77½	84½	—
L.N.E.R.				
5% Pref. Ord. ...	8 9/16	3½	4½	—
Def. Ord.	4 7/16	2 1/16	2⅝	—
4% First Prefce.	68¼	21	27½	+1
4% Second Prefce.	27¼	8	11	+½
5% Red.Pref.(1955)	97	40¼	45½	+3
4% First Guar. ...	97½	66¼	72½	+1
4% Second Guar.	91¼	52	62½	+2
3% Deb.	79¼	60	71½	+2
4% Deb.	104⅛	77	92½	+3
5% Red.Deb.(1947)	110⅝	97	104½	—
4½% Sinking Fund Red. Deb.	108 11/16	101	104	+½
Southern				
Pref. Ord. ...	87	47⅞	58	+1
Def. Ord. ...	21¾	9¼	12¾	—
5% Pref.	115	83	92½	+1
5% Red.Pref.(1964)	115½	98	100½	—
5% Guar. Prefce.	128½	106	115½	+1
5% Red.Guar.Pref. (1957)	116	109½	111½	—
4% Deb.	109¼	95	101½	+2
5% Deb.	129	117	119½	+1
4% Red. Deb. 1962–67	107	101½	105½	+1
Belfast & C.D.				
Ord.	4	3½	4	—
Forth Bridge				
4% Deb.	102	99⅛	96½*	—
4% Guar. ...	103¼	94½	97*	+2
G. Northern (Ireland)				
Ord.	5½	2½	4	—
G. Southern (Ireland)				
Ord.	25½	8½	15	—
Prefce.	35	13	13	—
Guar.	70¼	30 15/32	30½	—
Deb.	83	56	56	—
L.P.T.B.				
4½% "A" ...	119⅝	107½	111½	+1
5% "A" ...	130	117	119½	—
4½% "T.F.A." ...	108	98	102½	—
5% "B" ...	122 15/16	105	116½	+1
"C"	84	68	74½	—
Mersey				
Ord.	24¼	16½	20	—
4% Perp. Deb. ...	102⅞	94¾	95½	—
3% Perp. Deb. ...	77	69	67½	—
3% Perp. Prefce.	66½	57	55	—

* ex dividend

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 51st Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,831¼ mls.)						
Passenger-train traffic...	740,000	687,000	+ 53,000	26,531,000	26,518,000	+ 13,000
Merchandise, &c. ...	350,000	427,000	– 77,000	22,819,000	25,495,000	–2,676,000
Coal and coke ...	308,000	301,000	+ 7,000	12,977,000	13,381,000	– 404,000
Goods-train traffic ...	658,000	728,000	– 70,000	35,796,000	38,876,000	–3,080,000
Total receipts	1,398,000	1,415,000	– 17,000	62,327,000	65,394,000	–3,067,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	461,000	450,000	+ 11,000	17,182,000	17,301,000	– 119,000
Merchandise, &c. ...	254,000	308,000	– 54,000	16,062,000	17,624,000	–1,562,000
Coal and coke ...	248,000	243,000	+ 5,000	12,156,000	12,847,000	– 691,000
Goods-train traffic ...	502,000	551,000	– 49,000	28,218,000	30,471,000	–2,253,000
Total receipts	963,000	1,001,000	– 38,000	45,400,000	47,772,000	–2,372,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	365,000	331,000	+ 34,000	11,226,000	11,281,000	– 55,000
Merchandise, &c. ...	144,000	160,000	– 16,000	9,457,000	10,267,000	– 810,000
Coal and coke ...	103,000	115,000	– 12,000	5,496,000	5,808,000	– 312,000
Goods-train traffic ...	247,000	275,000	– 28,000	14,953,000	16,075,000	–1,122,000
Total receipts	612,000	606,000	+ 6,000	26,179,000	27,356,000	–1,177,000
S.R. (2,140 mls.)						
Passenger-train traffic...	459,000	421,000	+ 38,000	16,624,000	16,614,000	+ 10,000
Merchandise, &c. ...	47,500	51,000	– 3,500	3,093,000	3,245,000	– 152,000
Coal and coke ...	31,500	36,000	– 4,500	1,568,000	1,592,000	– 24,000
Goods-train traffic ...	79,000	87,000	– 8,000	4,661,000	4,837,000	– 176,000
Total receipts	538,000	508,000	+ 30,000	21,285,000	21,451,000	– 166,000
Liverpool Overhead ... (6½ mls.)	1,258	1,350	– 92	68,728	66,552	+ 2,176
Mersey (4½ mls.) ...	4,939	4,644	+ 295	225,615	216,531	+ 9,084
*London Passenger Transport Board ...	592,500	554,400	+ 38,100	14,831,900	14,623,300	+ 208,600
IRELAND.						
Belfast & C.D. pass. (80 mls.)	1,729	1,925	– 196	123,423	127,745	– 4,322
,, ,, goods	346	459	– 113	22,358	24,927	– 2,569
,, ,, total	2,075	2,384	– 309	145,781	152,672	– 6,891
Great Northern pass. (543 mls.)	11,850	15,050	– 3,200	558,150	564,050	– 5,900
,, ,, goods	10,850	8,700	+ 2,150	478,550	485,600	– 7,050
,, ,, total	22,700	23,750	– 1,050	1,036,700	1,049,650	– 12,950
Great Southern pass. (2,076 mls.)	46,906	51,679	– 4,773	1,867,766	1,865,687	+ 2,079
,, ,, goods	46,063	45,887	+ 176	2,163,750	2,220,141	– 56,391
,, ,, total	92,969	97,566	– 4,597	4,031,516	4,085,828	– 54,312

* 26th Week (before pooling). Christmas Day 1937 and 1938

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 52nd Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,831¼ mls.)						
Passenger-train traffic...	409,000	416,000	– 7,000	26,940,000	26,934,000	+ 6,000
Merchandise, &c. ...	241,000	359,000	– 118,000	23,060,000	25,854,000	–2,794,000
Coal and coke ...	217,000	228,000	– 11,000	13,194,000	13,609,000	– 415,000
Goods-train traffic ...	458,000	587,000	– 129,000	36,254,000	39,463,000	–3,209,000
Total receipts	867,000	1,003,000	– 136,000	63,194,000	66,397,000	–3,203,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	309,000	294,000	+ 15,000	17,491,000	17,595,000	– 104,000
Merchandise, &c. ...	222,000	290,000	– 68,000	16,284,000	17,914,000	–1,630,000
Coal and coke ...	235,000	260,000	– 25,000	12,391,000	13,107,000	– 716,000
Goods-train traffic ...	457,000	550,000	– 93,000	28,675,000	31,021,000	–2,346,000
Total receipts	766,000	844,000	– 78,000	46,166,000	48,616,000	–2,450,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	173,000	183,000	– 10,000	11,399,000	11,464,000	– 65,000
Merchandise, &c. ...	102,000	147,000	– 45,000	9,559,000	10,414,000	– 855,000
Coal and coke ...	79,000	91,000	– 12,000	5,575,000	5,899,000	– 324,000
Goods-train traffic ...	181,000	238,000	– 57,000	15,134,000	16,313,000	–1,179,000
Total receipts	354,000	421,000	– 67,000	26,533,000	27,777,000	–1,244,000
S.R. (2,140 mls.)						
Passenger-train traffic...	277,000	264,000	+ 13,000	16,901,000	16,878,000	+ 23,000
Merchandise, &c. ...	46,000	48,500	– 2,500	3,139,000	3,293,500	– 154,500
Coal and coke ...	33,000	36,500	– 3,500	1,601,000	1,628,500	– 27,500
Goods-train traffic ...	79,000	85,000	– 6,000	4,740,000	4,922,000	– 182,000
Total receipts	356,000	349,000	+ 7,000	21,641,000	21,800,000	– 159,000
Liverpool Overhead ... (6½ mls.)	1,055	1,243	– 188	69,783	67,795	+ 1,988
Mersey (4½ mls.) ...	4,416	4,386	+ 30	230,031	220,917	+ 9,114
*London Passenger Transport Board ...	492,100	541,500	– 49,400	15,324,000	15,164,800	+ 159,200
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,891	1,871	+ 20	125,314	129,616	– 4,302
,, ,, goods	337	268	+ 69	22,695	25,195	– 2,500
,, ,, total	2,228	2,139	+ 89	148,009	154,811	– 6,802
Great Northern pass. (543 mls.)	12,750	10,050	+ 2,700	570,900	574,100	– 3,200
,, ,, goods	5,700	6,950	– 1,250	484,250	492,550	– 8,300
,, ,, total	18,450	17,000	+ 1,450	1,055,150	1,066,650	– 11,500
Great Southern pass. (2,076 mls.)	41,394	31,483	+ 9,911	1,909,160	1,897,170	+ 11,990
,, ,, goods	23,073	32,946	– 9,873	2,186,823	2,253,087	– 66,264
,, ,, total	64,467	64,429	+ 38	4,095,983	4,150,257	– 54,274

27th week (before pooling). Christmas, Boxing Day, and Bank Holiday, 1938

CONTRACTS AND TENDERS

A. Jackaman & Sons Ltd. has received a contract from the L.N.E.R. for work in connection with the widening of the waterway between St. Andrew's Dock and Extension, the provision of a new swing bridge, and improvements to the access to the Fish Docks at Hull.

Boilers for India

The Vulcan Foundry Co. Ltd. has received orders from the Bengal-Nagpur Railway Administration for 24 superheater boilers for HSM class broad-gauge locomotives.

Turton Brothers & Mathews Limited has received an order from the Buenos Ayres Great Southern Railway for 550 steel spiral springs.

Usines & Acieries Allard has received an order from the Egyptian State Railways Administration for the supply of steel axle boxes (Ref. No. 21.914, total price, £310 f.o.b. Antwerp).

Leyland Motors Limited has received an order from the Londonderry & Lough Swilly Railway for one oil-engined single-decked passenger vehicle.

The Indian Iron & Steel Company has received an order from the Egyptian State Railways Administration for the supply of pig iron (Ref. No. ESR 6.325, total price £2,475), c.i.f. Port Said.

The Madras & Southern Mahratta Railway Administration has placed the following orders to the inspection of Messrs. Rendel, Palmer & Tritton :—

North British Rubber Co. Ltd. : 500 tyres for platform trolleys.

Thos. Firth & John Brown Limited : 25 straight axles for locomotives.

George Turton Platts & Co. Ltd. : 96,000 Stuart's keys and 96,000 wedges.

A.-I. Electric Welding Equipment Co. Ltd. has received an order from the Assam-Bengal Railway Administration for one automatic electric joint welder with three-phase transformer and static condenser, to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

Hurst Nelson & Co. Ltd. has received an order from the Jodhpur Railway Administration for three bogie carriage underframes, 56 ft. 6 in. long over headstocks and 7 ft. 5½ in. wide over solebars, for metre gauge service and to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

Tata Limited has received an order from the Bikaner State Railway Administration for 800 tons of medium manganese rails and 2,914 pairs of fishplates to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

The Burma State Railways Administration has placed orders, to the inspection of Messrs. Rendel, Palmer & Tritton, with Steel, Peech & Tozer, for 100 high-tensile steel tyres for locomotives, and with the Steel Company of Scotland Limited for 428 steel tyres for locomotives.

Howell & Co. Ltd. has received an order from the Bengal-Nagpur Railway for 2,000 Aquacidox boiler tubes.

The Vulcan Foundry Limited has received orders from the Leopoldina Railway for five sets of locomotive engine frames.

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from the Central Argentine Railway for 850 high-tensile steel screw couplings for carriages and wagons.

The English Steel Corporation has received an order from the Egyptian State Railways Administration for twist drills (Ref. No. ESR 8.237, total price £230, delivery f.o.b. London).

The Union Pacific Railroad has ordered a further 4,000-b.h.p. twin-unit diesel locomotive from the Electro-Motive Corporation. It is to be used in streamlined train service between Chicago and California, and will weigh about 270 English tons.

The Skoda Works have received a contract from the Egyptian State Railways Administration for the supply and erection of a new single-track swing-bridge over Giza Canal at El Lahoun and the supply of the mechanism for a temporary bridge.

The Associated Equipment Co. Ltd. has received repeat orders from City of Oxford Motor Services Limited for 10 Regent and from South Wales Transport Co. Ltd. for seven Renown passenger vehicles.

Tubes Limited has received an order from the Buenos Ayres Western Railway for 450 solid drawn black steel superheater smoketubes and 600 solid drawn black steel tubes for vertical boilers.

G.W.R. Contracts

The directors of the Great Western Railway have authorised the placing of the following contracts :—

John I. Thornycroft & Co. Ltd. : Supply of eight Thornycroft Trusty chassis and 20 Thornycroft Nippy chassis.

Hammond & Champness Limited : Supply and erection of two 3-ton electric goods lifts in new transit shed and warehouse at Paddington (New Yard).

Wharton Crane & Hoist Co. Ltd. : Supply and installation of one 1-ton runway in transit shed and warehouse at Paddington (New Yard).

E. A. Foulds Limited : Supply and erection of two 3-ton electric goods lifts in new warehouse at Plymouth (Millbay).

Sir Robert McAlpine & Sons (Midlands) Limited : Excavation in connection with provision of sidings for R.A.F. station at Cosford.

Tangyes Limited : Reconditioning of No. 1 borehole pump at Hockley.

Colley, Meikle & Co. Ltd. : Provision of heating installation for the new carriage lifting and painting shops at Caerphilly.

G. N. Haden & Sons Limited : Provision of heating installation for new carriage repair shop at Old Oak Common.

Tangyes Limited : Supply of one 200-ton hydraulic press in No. 18 (Stamping) Shop of the Swindon Carriage and Wagon Works.

Holman Bros. Limited : Supply of one electrically-driven two-stage air compressor in the locomotive depot at Taunton.

Cleveland Bridge & Engineering Co. Ltd. : Supply of steel girders and other iron and steelwork of British manufacture.

Spring Washers Limited is to supply 378,500 spring washers of Grover's pattern girder section to the G.I.P. Railway.

Stewarts and Lloyds Limited has received an order from the Buenos Ayres Western Railway for 5,200 solid drawn black steel boiler tubes.

The German State Railway has ordered during the past few weeks a total of 93 Maybach diesel engines equipped with Büchi exhaust-gas turbo chargers to give a normal maximum output of 600 b.h.p. These engines are for installation in railcars and high-speed diesel trains.

Locomotives Required for Egypt

The Egyptian State Railways Administration invites tenders, closing on March 4, for 16 2-6-0 type locomotives and tenders.

Southern Railway Enquiry for Cross-Channel Vessel

Tenders are invited by the Southern Railway for the supply of a cross-Channel vessel for the Dover-Calais service. It is understood that the vessel will be an improvement on the *Canterbury*, with an additional deck and a speed of about 25 knots. It has not yet been decided whether the vessel will be equipped for oil firing or with mechanical stokers. The dimensions will be : Length 350 ft., breadth 52 ft., with accommodation for 1,300 passengers.

Diesel Locomotive Required for South Africa

The Union of South Africa Tender and Supplies Board, Pretoria, is calling for tenders (Tender No. S.O. 1051) for the supply and delivery f.o.b. port of shipment of a diesel locomotive for the State Alluvial Diggings, Alexander Bay. Tenders endorsed "Formal Tender No. S.O. 1051" should reach the Secretary, Union Tender and Supplies Board, 271, Visagie Street, P.O. Box 371, Pretoria, South Africa, by February 2. A copy of the specification and conditions of contract may be borrowed from the Department of Overseas Trade, London, S.W.1. Local representation is essential.

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo station, by February 18, for the supply of 36,000 metric tons of sized coal.

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo station, by February 15, for the supply of one moulding machine.

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo station, by February 14, for the supply of one core drying stove.

Batteries Limited, of Hunt End Works, Redditch, announces that the name of the company has been changed to Nife Batteries Limited, so as to incorporate its well-known trade mark.

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

APPLICATIONS from qualified candidates are invited for the following post:—
SECTION ENGINEER required for the Nigerian Government Railway for two tours each of 12-24 months, with prospect of permanency. Salary £475-£840 a year. Free passages and quarters and liberal leave on full salary. Candidates, age 23-35, should be Corporate Members of the Institution of Civil Engineers or possess an Engineering Degree recognised as granting exemption from Sections A and B of the A.M.I.C.E. examination, and have had practical experience in bridge and reinforced concrete construction. Candidates who are students of the Institution of Civil Engineers and have had the requisite practical experience, are also eligible for consideration.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/6607.

Port of Preston Authority

CHIEF INSPECTOR (OUTDOOR).

THE Corporation of Preston invite applications from competent persons for the position of Chief Inspector. Applicants should have a general knowledge and practical experience of Dock operations, including Discharging and Loading of Vessels, Coal Shipping, Supervision of Quays and Warehouses, and Railway Working, also the control of labour engaged thereon.

The commencing salary is £270 per annum, rising by annual increments of £15 to £315, with Uniform. Candidates must not be over 45 years of age on the 1st January, 1939. The applicant appointed will require to pass a medical examination and contribute to the Corporation's Superannuation Fund.

Applications stating age, experience, and present position, with copies of three recent testimonials, should be sent under cover to the Town Clerk, Municipal Building, Preston, marked "Chief Inspector," not later than 22nd January, 1939.

ASSISTANT ENGINEERS (Temporary) required by Main Line Railway Company in London. Candidates must be thoroughly competent and experienced in up-to-date design and detailing of reinforced concrete and steel structures, bridges, etc. Previous railway experience an advantage. Preference given to candidates who are Associate members of the Institution of Civil Engineers or who possess an equivalent qualification. Salary £6 to £10 per week according to qualifications and experience. Applications, stating age, qualifications, experience, and enclosing copies of testimonials, should be sent to: BOX 21, THE RAILWAY GAZETTE, 33, Tothill Street, London, S.W.1.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

QUESTIONS IN PARLIAMENT

Railway Rates

Sir Douglas Thomson (Aberdeen South—C.), on December 21, asked the Minister of Transport what percentage return on capital expenditure on docks, harbours, and wharves was earned by the four main-line railway companies; and whether, as the port of Aberdeen was bound to meet its obligations on capital charges yearly and this resulted in the users of the port of Aberdeen and the railways subsidising in part the users of railway-owned docks and the railways, he would take this into consideration when reviewing the question of railway rates.

Dr. Leslie Burgin in reply circulated the following statement:—

"The latest year for which I have figures enabling me to state the percentage return earned on the capital of railway-owned docks, harbours and wharves is 1936, when the position was as follows: The results of working the railway docks during 1936 were considered by the Railway Rates Tribunal in 1937 in connection with the companies' application for an increase in rail charges and in their judgment of July 27, 1937, they said:

'We are not satisfied that the net revenue resulting from the operation of any of the dock businesses of any of the companies is, having regard to the circumstances, unduly low, and are not of opinion that any of the railway companies at any of its docks is not making adequate charges.'

"The railway companies' proposals as to rates for merchandise traffic have been referred to the Transport Advisory Council on which the harbour and dock interests are represented."

Withdrawal of Trains on L.N.E.R.

Mr. David Adams (Consett—Lab.), on December 22, asked the Minister of Transport whether he had a statement to make as to the withdrawal that month of many trains by the L.N.E.R. upon grounds of economy; and whether, in view of the statutory obligations of the railway companies, he was satisfied that the public interest was, in this matter, being fully safeguarded.

Dr. Leslie Burgin (Minister of Transport): The company informs me that the withdrawal of certain trains resulted from a review of passenger train carryings, and assures me that every care was taken to see that as little inconvenience as possible was caused to the public. I have no reason to think that, in consequence of the withdrawal of these trains, the transport facilities available to the public will be inadequate.

Mr. Adams: Has the Minister had complaints from any local authorities regarding these withdrawals?

Dr. Burgin: Not that I am aware of.

Railways Goods Motor Vehicles

Captain W. F. Strickland (Coventry—C.), on December 22, asked the Minister of Transport if he would state the number of road motor goods vehicles authorised and in possession of the railway companies at June 30, 1938, and at the corresponding date in 1937.

Dr. Leslie Burgin: The numbers of road motor goods vehicles authorised and in possession of the railway companies at June 30, 1938, and June 30, 1937, were 10,257 and 9,709 respectively.

RAILWAY AND OTHER REPORTS

Interoceanic Railway of Mexico (Acapulco to Vera Cruz) Limited.—Gross earnings for the year 1937 of the Interoceanic System, which includes the lines of the two lessor companies—the Mexican Eastern Railway Co. Ltd. and the Mexican Southern Railway Limited) rose by 359,000 pesos and were the highest in the history of the company. Expenses, however, increased by 1,711,000 pesos. Wages paid under official enactments accounted for a large proportion of this increase, and the cost of maintenance, repairs, and hire of rolling stock showed a substantial rise. Rehabilitation of the properties and replacement of rolling stock has not been possible owing to lack of the necessary funds and the failure of successive Mexican authorities to effect any settlement in respect of the damage sustained during the 11½ years of Governmental retention of the railways. The operating loss of the system for the year 1937 was 5,093,000 pesos. As a consequence of the expropriation by the Mexican Government in July, 1937, of the National Railways of Mexico (the operating managers of the Interoceanic Company's railway and leased lines) the properties of the National Company and the operation of the Interoceanic System under the terms of existing contracts were declared to be transferred on May 1, 1938, to the "Labour Administration of the National Railways of Mexico" created by Presidential Decree.

South Manchuria Railway.—The coupons due January 15, 1939, on the South Manchurian Railway 5 per cent. sterling loan of 1923 will be paid on and after January 16 (Saturdays excepted) between the hours of 11 and 1 at the Yokohama Specie Bank Limited, 7, Bishopsgate, E.C.2.

Turner & Newall Limited.—The preliminary statement for the year to September 30, 1938, shows a rise in trading profits from £1,333,489 to £1,361,694 after providing for depreciation and income tax. Further deductions are £10,000 (the same) for staff pensions and £84,000, against £40,000, for N.D.C. The preference dividend again takes £101,098, and the ordinary dividend for the year remains at 20 per cent., requiring £1,065,756. An appropriation of £100,000 is again made to general reserve, and £116,610 is to be carried forward, against £115,770 brought in.

XUM

Railway Share Market

Firmer conditions have continued to rule in most sections of the Stock Exchange and there has again been a tendency for prices to move in favour of holders, although earlier gains this week were not fully held. The volume of business has remained small, but with few exceptions Home railway securities were better, more particularly the prior charge stocks, the attractive yields on which has continued to bring in buyers.

The traffic decrease for the past week, although not unexpected, tended to affect sentiment on Wednesday when fractional losses were shown by some of the junior stocks. L.M.S.R. 4 per cent. preference transferred around 50 and the 1923 preference around 30, while the 4 per cent. guaranteed was very firm at 84½, and the 4 per cent. debentures were 97½. Great Western 4 per cent. debentures were better at 102½, as was the 5 per cent. preference at 83. The ordinary stock was relatively dull at 27½, there still being conflicting views as to the extent the directors may be prepared to draw on reserves in order to increase the sum available for a dividend on this stock. Southern preferred was better at 58½, and the deferred was around 12½. The 5 per cent. guaranteed improved to 116 and the 4 per cent. debentures to 102½, while the 5 per cent. preference was 93. L.N.E.R. 3 per cent. and 4 per cent. debentures, at 71½ and 92½ respectively, participated in the better tendency. The first guaranteed at 73 and the second guaranteed at 63, were firm, awaiting declaration of the final dividends, payment of which is due next month. The market is continuing to take the view that, if necessary, reserves will be drawn on in order to make these payments in full. The first preference transferred around 28 and the second preference around 11¼. London Transport "C" was firm at 74¾, while the 5 per cent. "A" stock made the higher price of 120 and the "B" stock was quoted at 116.

Current estimates of the forthcoming dividend decisions of the Home railways do not vary a great deal. General expectations are that 3½ per cent., or possibly slightly more, may be paid on Southern 5 per cent. preferred. No dividends will be possible on L.N.E.R. first and second preference, but as already mentioned, there are hopes that the full distributions may be made on the guaranteed stocks, and, in any case, they are cumulative as to dividend. In regard to L.M.S.R. 4 per cent. first preference it is hoped that at least 3½ per cent. may be forthcoming, and 4⅜ per cent. on the 5 per cent. redeemable preference.

Argentine railway securities were inclined to react owing to the small amount of business passing. The ordinary stocks of the leading railways were fractionally lower and small declines were also shown by B.A. Great Southern, B.A. Western, and Central Argentine preference issues, while profit-taking was in evidence in the debentures following their recent gains. Cordoba Central stocks were better on balance, having remained under the influence of the final decision to purchase the line, but the first debentures fluctuated moderately. American railway shares failed to keep all the improvement shown at the beginning of the week. Canadian Pacific were 6⅜.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1938-39	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1938	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1938	Prices: Lowest 1938	Prices: Jan. 4, 1939	Yield (See Note)
South & Central America	Antofagasta (Chili) & Bolivia	834	25.12.38	£ 11,000	— £ 9,260	52	£ 761,990	£ 875,820	— £ 113,830	Ord. Stk.	14	7¼	9	Nil
	Argentine North Eastern	753	31.12.38	8,455	— 211	27	274,075	258,582	+ 15,493	„	6½	2	5½	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	82	75	70½§	5 11/16
	Bolivar	174	Nov., 1938	2,900	+ 300	48	40,100	55,650	— 15,550	6 p.c. Deb. Bonds.	8	7	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Dfd.	10	4	5	9 1/16
	Buenos Ayres & Pacific	2,806	31.12.38	91,253	+ 2,419	27	1,996,033	2,140,449	— 144,416	Ord. Stk.	6½	3¼	5½	Nil
	Buenos Ayres Central	190	17.12.38	$81,800	— 12,500	25	$2,854,000	$3,234,000	— $380,000	Mt. Deb.	15½	8	17	Nil
	Buenos Ayres Gt. Southern	5,084	31.12.38	159,243	+ 2,853	27	3,381,451	3,405,211	— 23,760	Ord. Stk.	17 5/16	8½	12¾	Nil
	Buenos Ayres Western	1,930	31.12.38	44,603	— 682	27	1,102,915	1,227,172	— 124,257	„	12¾	5	10	Nil
	Central Argentine	3,700	31.12.38	152,714	+ 22,019	27	2,837,640	3,427,187	— 589,547	„	13¼	5¾	10¾	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	6	2½	4	Nil
	Cent. Uruguay of M. Video	972	24.12.38	21,523	+ 1,340	26	462,222	432,254	+ 29,968	Ord. Stk.	3	1¼	2	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	Ord. Inc.	3¾	¾	3	Nil
	Costa Rica	188	Oct., 1938	19,893	— 2,687	18	94,876	101,026	— 6,150	Stk.	28	22½	24	8 5/16
	Dorada	70	Nov., 1938	14,300	— 1,500	48	178,100	170,100	+ 8,000	1 Mt. Db.	105¼	104	103½§	5 13/16
	Entre Rios	810	31.12.38	17,339	+ 1,067	27	417,100	368,291	+ 48,809	Ord. Stk.	7¼	3½	7	Nil
	Great Western of Brazil	1,092	31.12.38	11,900	+ 500	53	418,300	440,300	— 22,000	Ord. Sh.	3/-	1/-	¼	Nil
	International of Cl. Amer.	794	Nov., 1938	$500,436	+ $56,587	48	$5,081,216	$5,224,782	— $143,566	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	6d.	6d.	½	Nil
	La Guaira & Caracas	22¾	Dec., 1938	800	— 4,090	52	57,905	61,575	— 3,670	Stk.	8	6½	7½	Nil
	Leopoldina	1,918	31.12.38	30,075	+ 7,162	53	1,143,865	1,205,230	— 61,365	Ord.Stk.	4	1	2	Nil
	Mexican	483	31.12.38	$436,300	+ $29,200	26	$7,022,900	$7,753,200	— $730,300	„	¼	1/16	⅛	Nil
	Midland of Uruguay	319	Nov., 1938	9,206	— 292	22	43,352	42,563	+ 789	„	7/8	½	½	Nil
	Nitrate	386	31.12.38	6,139	— 3,212	52	143,422	154,113	— 10,691	Ord. Sh.	52/9	19/16	1¾	5 11/16
	Paraguay Central	274	31.12.38	$3,043,000	+ $14,000	27	$82,227,000	$87,360,000	— $5,133,000	Pr. Li. Stk.	60	55½	55½§	5 7/16
	Peruvian Corporation	1,059	Dec., 1938	68,780	— 8,128	26	409,453	504,036	— 94,583	Pref.	5¾	1¾	2¾	Nil
	Salvador	100	24.12.38	¢34,000	+ ¢7,250	26	¢368,214	¢361,125	+ ¢7,089	Pr. Li. Db.	23	20	19½	Nil
	San Paulo	153¼	25.12.38	32,223	+ 4,200	52	1,590,480	1,664,280	— 73,800	Ord. Stk.	64	28	29	13 1/16
	Taltal	160	Nov., 1938	1,730	— 1,735	22	13,515	16,350	— 2,835	Ord. Sh.	15/16	½	⅝	16
	United of Havana	1,353	24.12.38	16,150	— 730	26	398,297	424,574	— 26,277	Ord. Stk.	3⅛	½	1	Nil
	Uruguay Northern	73	Nov., 1938	1,305	+ 379	22	5,203	4,309	+ 894	Deb. Stk.	2	1	2	Nil
Canada	Canadian National	23,721	21.12.38	702,975	— 28,562	51	35,525,183	38,635,463	+ 3,110,279	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	72	60	69½	5¾
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	104	90	100½	4
	Canadian Pacific	17,186	31.12.38	707,200	— 64,600	52	28,451,800	29,017,200	— 565,400	Ord. Stk.	8 7/16	4¼	6 2	Nil
India†	Assam Bengal	1,329	10.12.38	43,057	+ 6,506	36	1,028,468	950,951	+ 77,517	Ord. Stk.	81½	70	77½§	3 7/8
	Barsi Light	202	10.12.38	3,060	+ 112	36	99,217	90,150	+ 9,067	Ord. Sh.	60½	54¼	58½	6 13/16
	Bengal & North Western	2,108	10.12.38	73,885	— 1,015	11	516,337	528,034	— 11,697	Ord. Stk.	31	27	27 5/8§	6 9/16
	Bengal Dooars & Extension	161	10.12.38	4,172	+ 355	36	108,121	105,529	+ 2,592	„	89	83	87½	7 7/16
	Bengal-Nagpur	3,268	10.12.38	200,100	+ 5,074	36	4,714,794	4,787,991	— 73,197	„	95½	90	93½	4¼
	Bombay, Baroda & Cl. India	3,085	20.12.38	251,700	— 6,900	38	6,172,050	6,265,350	— 93,300	„	112 7/16	95	107½	5 9/16
	Madras & Southern Mahratta	2,967	10.12.38	155,550	+ 11,205	36	3,776,296	3,377,198	+ 199,098	„	109	97	102½	7 5/16
	Rohilkund & Kumaon	571	10.12.38	14,519	+ 125	11	90,978	88,400	+ 2,578	„	308	285	278§	6½
	South Indian	2,531¾	10.12.38	110,927	+ 6,472	36	2,852,682	2,876,860	— 24,178	„	104	101	102 2/8§	4 7/8
Various	Beira-Umtali	204	Oct., 1938	77,765	— 17,949	4	77,765	95,714	— 17,949	—	—	—	—	—
	Egyptian Delta	620	10.12.38	7,402	+ 740	36	157,557	167,427	— 9,870	Prf. Sh.	7/8	5/6	½	Nil
	Kenya & Uganda	1,625	Aug., 1938	182,150	— 14,527	35	1,860,357	1,920,155	— 59,798	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	49	41	47	7 7/16
	Midland of W. Australia	277	Nov., 1938	14,024	— 431	22	75,880	69,130	+ 6,750	Inc. Deb.	93 5/4	89	95§	4 5/16
	Nigerian	1,900	19.11.38	63,078	— 15,735	34	1,054,089	1,629,943	— 575,854	—	—	—	—	—
	Rhodesia	2,451	Oct., 1938	386,983	— 80,380	4	385,983	467,363	— 80,380	—	—	—	—	—
	South Africa	13,285	10.12.38	714,588	+ 4,760	37	22,715,557	23,563,306	— 847,749	—	—	—	—	—
	Victoria	4,774	Sept., 1938	757,548	+ 28,434	13	2,236,793	2,150,206	+ 86,590	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value